VICTRIX ZEUS SUPERIOR 26/32 kW

Instruction Booklet

Eco-friendly wall-hung condensing boilers with stainless steel storage tank

Read these instructions completely before using or installing the Victrix Zeus Superior 26/32kW gas boilers

LEAVE THESE INSTRUCTIONS WITH THE USER

RVR Ltd.
Energy Technology

For Technical assistance, spare parts or service call:

RVR Energy Technology Limited, Kenmare, Co. Kerry Tel: 064 41344, Fax: 064 89520

Doc. Ref.: ALT123/220509

Introduction

The Victrix Zeus Superior 26/32kW boilers are condensing wall hung, room sealed combination boilers incorporating a 54 litre stainless steel unvented hot water storage cylinder. This boiler has the highest efficiency possible for a gas boiler, i.e. 4 stars (****) in conformity with European Directive 92/42 EEC.

The boiler, providing both central heating and domestic hot water supply, is designed for use with a fully pumped, sealed and pressurised heating system using **Natural Gas or LPG**. The boiler is supplied for use with one of these gas types and must be converted before it can be used on another gas. A boiler equipped for natural gas must not be used on LPG or vice versa.

The boiler is supplied with a pump, diverter valve, automatic bypass, pressure relief valve, expansion vessel and pressure gauge fully assembled and tested.
As supplied, the boiler will automatically modulate to provide central heating outputs between 4.7 and 20.0kW for the 26kW model and 6.9 to 32kW for the 32kW model. The maximum output available for domestic hot water is 26.9 kW for the 26kW model and 33kW for the 32kW model and the boiler provides hot water at temperatures of up to 60°C.

IMPORTANT

All gas appliances must be installed by a competent and qualified person, in accordance with relevant clauses of applicable standards and recommendations. These include but may not be limited to the following:-
I.S. 813 Domestic Gas Installations
I.S, 820 Non-Domestic Gas Installations
All relevant Building Regulations.
Local Water Bye Laws
IEE Wiring Regulations
Health & Safety legislation

This appliance meets the requirements of IPX5D, i.e. degree of protection against moisture.
Failure to install this appliance correctly could lead to prosecution. It is in your own interest and that of safety to ensure that the law is complied with. Manufacturer's instructions must **NOT** be taken in anyway as over-riding statutory obligations.

Carbon Monoxide

Every year there are several deaths and serious injuries in Ireland due to carbon monoxide poisoning. These are avoidable if certain preventative measures are taken.

1. Ensure all boilers, heaters, stoves and hobs which burn oil, natural gas, LPG, coal, peat, wood and wood pellets are serviced regularly. Servicing is needed at least once per year to ensure safety. The service person should be qualified and trained to service the specific type of boiler or heater.
2. If a boiler or heater is fitted in a dwelling, then a carbon monoxide detector should always be fitted.

There are two types available:
A simple detector will work like a fire alarm and emit an alarm if carbon monoxide is detected.

A more sophisticated type will also switch off the heater or boiler ensuring complete safety.

RVR Energy Technology recommends that a carbon monoxide detector is installed in all dwellings where any type of boiler, heater or other combustion appliance is installed.

Please call 064 6641344 or email co@rvr.ie for more information or to have a detector installed.

Boiler Operating Instructions

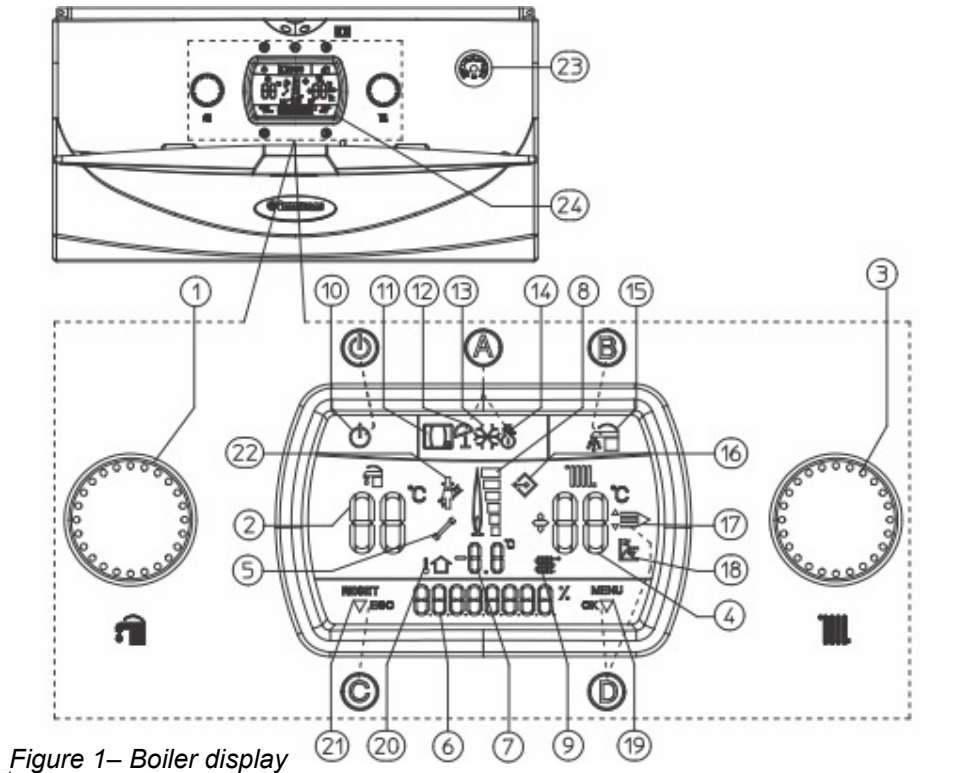


Figure 1– Boiler display

⏻ - Stand-by - On Button
A - Summer and winter
B - Domestic hot water priority Activation Button
C - (RESET) / menu exit (ESC) reset button.
D - Menu entry button (MENU)/ data confirmation (OK)
1 - Domestic hot water temperature selector switch
2 - Domestic hot water temperature set
3 - Central heating temperature selector switch
4 - Central heating temperature set
5 - Presence of faults
6 - Display of boiler functioning status
8 - Flame presence symbol and relative power scale
9 and 7 - Primary heat exchanger output water temperature
10 - Boiler in stand-by
11 - Boiler connected to remote control (Optional)
12 - Functioning in summer mode
13 - Anti-freeze function in progress
14 - Functioning in winter mode
15 - Domestic hot water priority functioning active
16 - Connection to external tools for technician
16 - Display of menu items
18 - Functioning with external temperature probe active
19 - Display of data confirmation or menu access
20 and 7 -External temperature display with external probe connected (optional)
21 - Display of reset or exit menu request
22 - Chimney sweep function in progress
23 - Boiler manometer
24 - Multi-function display

Using the Boiler

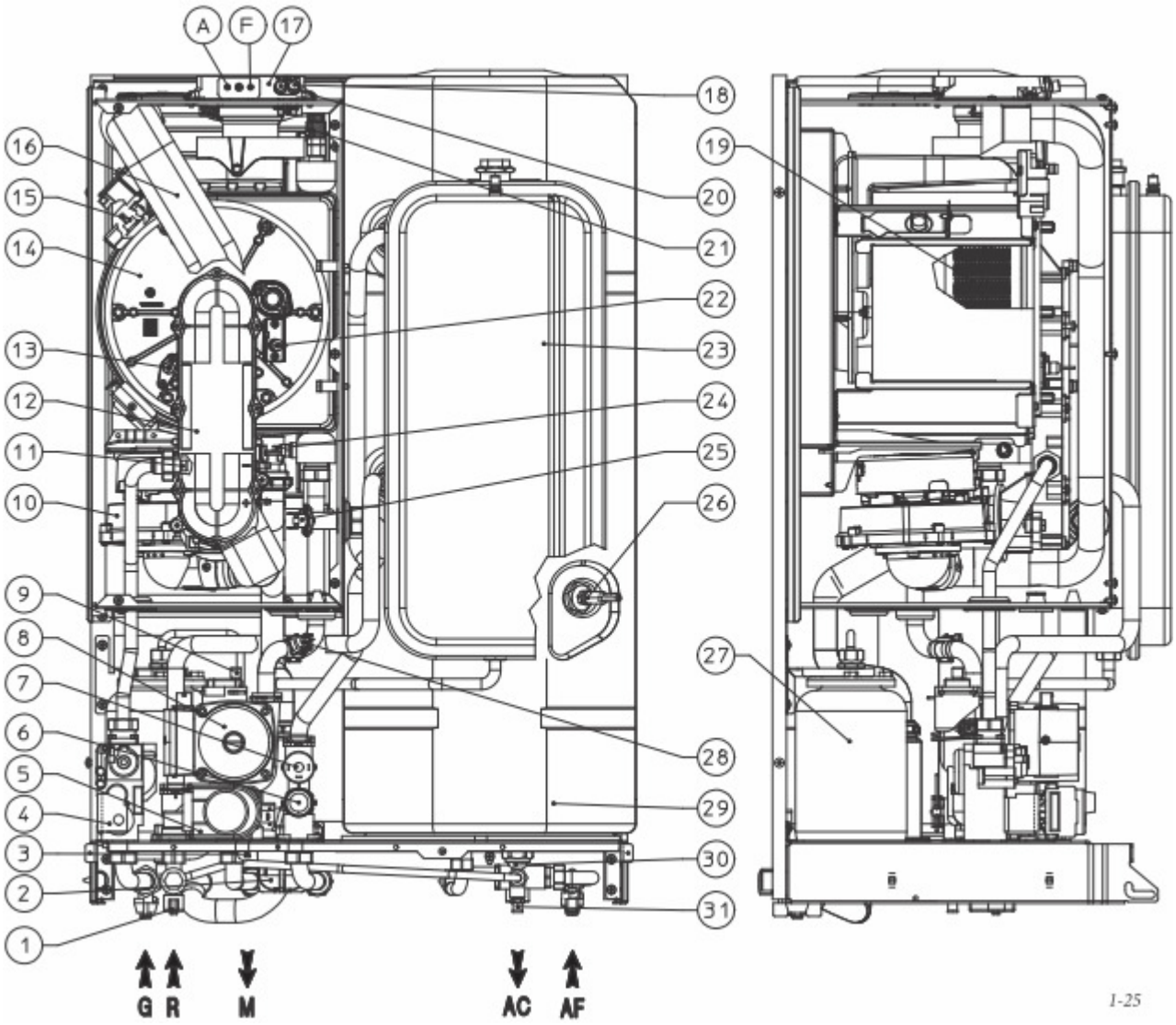
Before lighting, make sure that the system is full of water and that the manometer (23) indicates a pressure of 1 - 1.2 bar.
Open the gas valve on the gas supply to the boiler.
The boiler is turned on and off by pressing button ⏻
Press button A to switch to either Summer or Winter Heating.
N.B.: With button A set to summer, the central heating temperature setting is not active, and the domestic water temperature is controlled by selector (1). With the switch set to the central heating temperature is set using selector (3) while selector (1) is used for the domestic hot water. Turn the selectors clockwise to raise the temperature, anticlockwise to lower it. Boiler operation is now automatic.
Button A - The boiler operating mode may be changed from the summer mode to winter mode by repeatedly pressing button A. In summer mode, the DHW heating is active and central heating is not available. In winter mode both central heating and direct hot water are available. The currently selected operating mode is shown on the bottom of the LCD display.
Button B - Button B is used to override the hot water priority function B may be pressed until the DHW symbol disappears from the left side of the LCD display. When this happens the boiler will function in central heating mode only.
Button C is used to reset faults and also to exit the boiler menu system.
Selector switch (1) — used to adjust the DHW heating temperature from 20°C to 60°C. The set temperature is displayed on the left side of the display during adjustment.
Selector switch (5) - used to adjust the central heating temperature from 25°C to 85°C. The set temperature is displayed on the right hand-side of the LCD display during adjustment.

Boiler Technical Data

PERFORMANCE:		**Victrix Zeus Superior 26**			**Victrix Zeus Superior 32**		
Nominal Heat Input (DHW)	*Kw*	26.9			33		
Nominal Heat Output (Central Heating)		20.8			33		
Min. Heat Input	*Kw*	5.0			7.3		
Nominal Heat Output (useful) (DHW)	*Kw*	25.8			32		
Nominal Heat Output (useful) (Central Heating)		20			32		
Min. Heat Output (useful)	*Kw*	4.7			6.9		
GAS:		*G20*	*G30*	*G31*	*G20*	*G30*	*G31*
Nozzle diameter	*mm*	5.7	4.1	4.1	-	6.0	6.0
Supply Pressure	*Mbar*	20	29	37	20	29	37
***HEATING SYSTEM*:**							
Max Operating Pres. of Heating Unit	*bar*	3			3		
Max Operating Temp. of Heating Unit	*°C*	90			90		
Adjustable Heat Temp (range 1)	*°C*	25 - 85			25-85		
Adjustable Heat Temp (range 2)	*°C*	25 - 50			25-50		
Total Volume of heating expansion vessel	*l*	7.1			7.1		
Expansion Vessel precharge	*bar*	1.0			1.0		
Generator Water Capacity	*l*	6.7			9.1		
Total volume of DHW expansion vessel	l	1.2			1.2		
DHW expansion vessel pre-charge	bar	2.5			2.5		
Available head capacity 1000 l/h	*kPa*	18.7			35.5		
Working Heat Output d.h.w production	*Kw*	26.9			33.0		
DHW adjustable temperature	*°C*	20-60			20-60		
Flow Limiting Device	*l/min*	10			14		
DHW circuit minimum pressure	*bar*	0.3			0.3		
DHW circuit max operating pressure	*bar*	8			8		
Specific capacity D according to EN6625	*l/min*	16			19.2		
Continuous flow rate ΔT 30°C	*l/min*	13.1			15.3		
Minimum pressure for flow limiting device rated capacity	*bar*	1.0			1.0		
Full boiler Weight	*kg*	76.8			81.9		
Empty boiler weight	*kg*	70.1			72.8		
ELECTRICAL:							
Power Connection	*v/hz*	230/50			230/50		
Rated Power Input	*A*	0.57			0.65		
Installed Electrical Power	*W*	110			135		
Power absorbed by circulation pump	*W*	74.7			98.6		
Power absorbed by fan	*W*	24.4			29		
Appliance electrical system callout	-	IPX5D			IPX5D		
FLUE GASES:		*G20*	*G30*	*G31*	*G20*	*G30*	*G31*
Rated power fume mass flow	*kg/h*	43	39	43	52	47	53
Minimum power fume mass flow	*kg/h*	8	7	8	12	11	12
CO2 at nominal output	*%*	9.4	12.0	10.6	9.4	12.3	10.5
CO2 at minimum output	*%*	8.9	11.8	10.2	8.9	11.9	10.3
CO at O% O2 at nominal output	*ppm*	200/7	670/11	270/7	206/9	640/8	190/8
NOx at 0% of 02 at nominal output	*ppm*	39/22	108/50	43/30	47/24	158/51	57/30
Temperature of fumes at rated output (50/30)	*°C*	78	86	79	73	82	74
Temperature of fumes at min. output (50/30)	*°C*	73	82	75	64	72	66

Table 1— Technical Data

Main Boiler Components

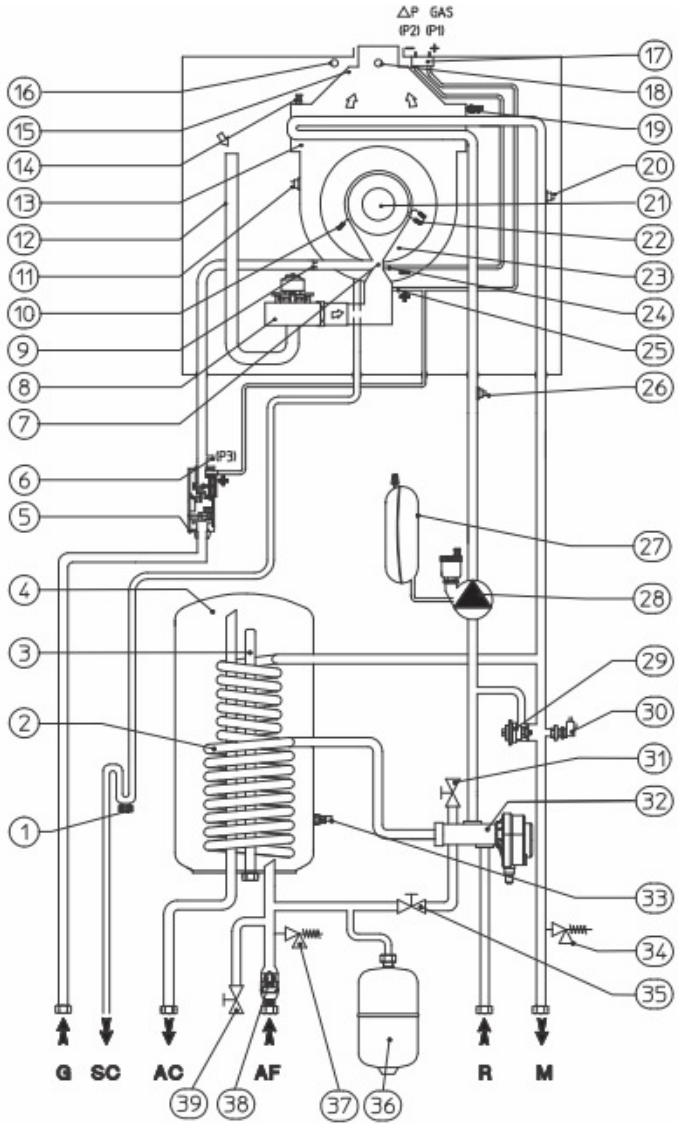


Gas | System Return | System Flow | DHW Outlet | Cold water inlet

1 - System filling valve
2 - Condensate drain trap
3 - System draining valve
4 - Gas valve
5 - Three-way valve (motorised)
6 - 3 bar safety valve
7 - System pressure switch
8 - Boiler pump
9 - Vent valve
10 - Fan
11 - Gas nozzle
12 - Venturi
13 - Detection electrode
14 - Condensation module
15 - Flue safety thermostat
16 - Air intake pipe
17 - Sample points (air A) - (fumes F)
18 - Negative signal pressure point
19 - Burner
20 - Positive signal pressure point
21 - Manual vent valve
22 - Ignition electrodes
23 - System expansion vessel
24 - Flow probe
25 - Safety thermostat
26 - Domestic hot water probe
27 - D.H.W. expansion vessel
28 - Return probe
29 - Stainless steel cylinder
30 - 8 bar safety valve
31 - Cylinder draining valve

Figure 2—Boiler Main Components

Hydraulic Layout



1 - Condensate drain
1 - Stainless steel coil for cylinder
3 - Magnesium anode
4 - Stainless steel cylinder
5 - Gas valve
6 - Gas valve outlet pressure point (P3)
7 - Air/gas Venturi collector
8 - Fan
9 - Gas nozzle
10 - Detection electrode
11 - Flue safety thermostat
12 - Air intake pipe
13 - Condensation module
14 - Manual vent valve
15 - Fumes hood
16 - Air sample point
17 - Δp gas pressure point
18 - Flue sample point
19 - Flow probe
20 - Safety thermostat
21 - Burner
22 - Igniton electrodes
23 - Condensation module cover
23 - Venturi negative sign (P2)
25 - Venturi positive sign (P2)
26 - Return probe
27 - System expansion vessel
28 - Boiler pump
29 - Adjustable by-pass
30 - System pressure switch
31 - System draining valve
32 - Three-way valve (motorised)
33 - Domestic hot water probe
34 - 3 bar safety valve
35 - System filling valve
36 - D.H.W. expansion vessel
37 - 8 bar safety valve
38 - Cold water inlet non-return valve
39 - Cylinder draining valve
G - Gas supply
SC - Condensate drain
AC - Domestic hot water outlet
AF - Domestic hot water inlet
R - System return
M - System flow

Figure 3—Hydraulic Layout

General Installation Information

Gas Supply

The meter and supply pipes must be sized to deliver the gas rate and pressure given on page 4. The boiler requires at least a 22 mm (3/4") gas supply pipe. The complete installation, including the meter, must be tested for gas soundness and purged as described in IS 813:2002.

Electrical Installation

The boiler requires a 220/240 V ~ 50 Hz mains supply, fused at 3 A. **The boiler must be earthed.** The polarity of the supply must be correct as otherwise the boiler will not operate properly.

There must only be one common isolator, providing complete electrical isolation, for the boiler and any external controls. Using PVC insulated cable not less than 0.75 mm² (24 x 0.2 mm) to BS 6500 Table 16, the boiler should be connected to a fused three pin plug and unswitched shuttered socket outlet (both complying with BS 1363), or a fused double pole switch with a contact separation of at least 3 mm in both poles.
Wiring external to the boiler must be in accordance with the current IEE Wiring Regulations.

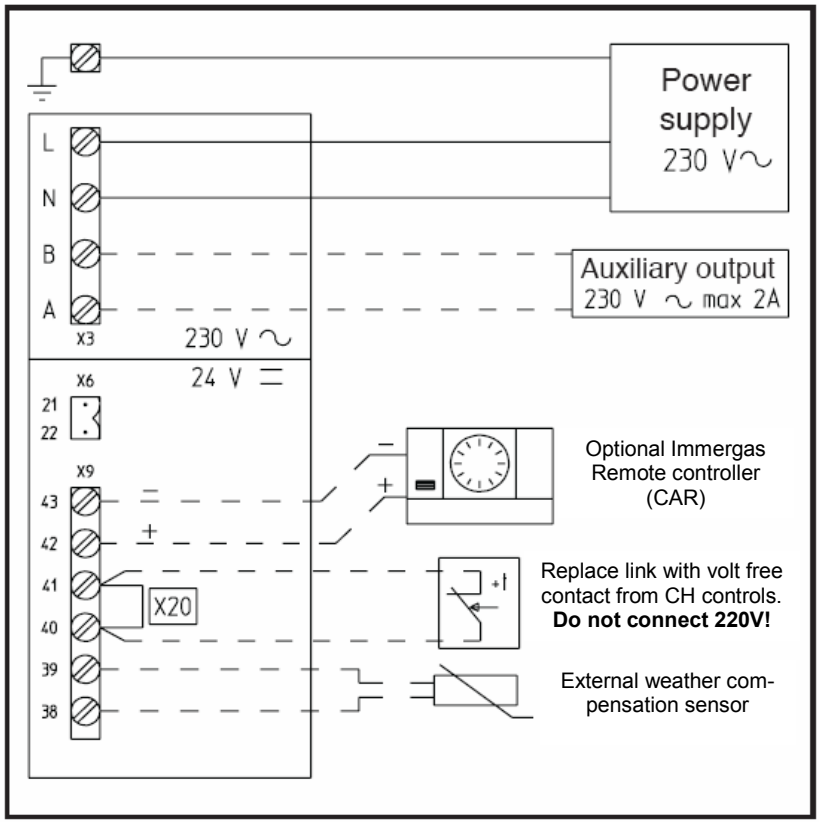


Figure 4—Electrical Installation

Note: External controls connected to the boiler must be of the volt free type and are connected to terminals 40 and 41 as shown above.

Weather Compensation

A temperature sensor for outdoors is available as an optional accessory for the boiler. This should be fitted in an outdoor location which is not exposed to direct sunlight. A north facing wall is a good location.
If the optional weather compensation sensor is used, it should be connected to terminals 38 and 39 as shown above using a two core cable. If this cable is routed in close proximity to cables carrying mains voltages, then screened cable should be used. Contact RVR for more information.
When the sensor is connected, the boiler adapts it's flow temperature to suit the prevailing weather conditions. This results in lower energy usage and enhanced comfort.

WARNING ! - Connection of a voltage to any boiler terminals other than the mains lead will result in destruction of the boiler control panel. The product warranty does not cover this type of damage.

Clearances and Air Supply

The boiler does not require any air vents for cooling in the room in which it is installed or when installed in a cupboard or compartment. The minimum clearances for servicing must always be maintained. Please see table on page 14. **Note:** A cupboard or compartment used to enclose the boiler must be designed and constructed specifically for the purpose.

Boiler Dimensions

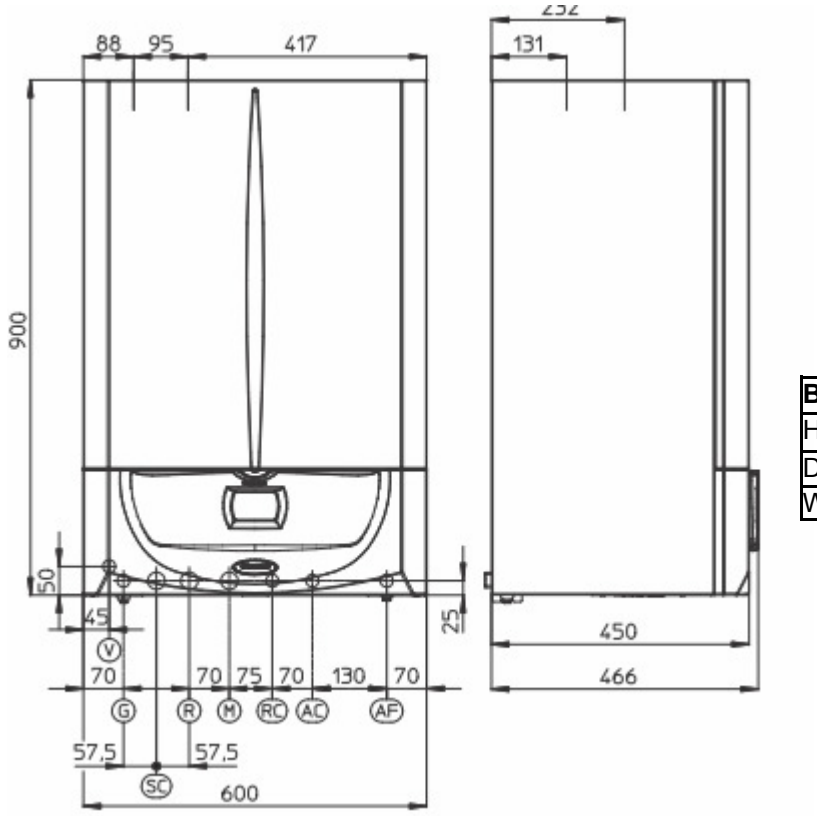


Figure 5—Boiler Dimensions

Boiler Dimensions	
Height	900mm
Depth	466mm
Width	600mm

V - Electric connection
G - Gas supply
SC - Condensate drain (minimum internal diameter Ø 13 mm)
R - System return
M - System flow
RC - Domestic hot water pump (optional)
AC - Domestic hot water outlet
AF - Domestic hot water inlet

Boiler Connections

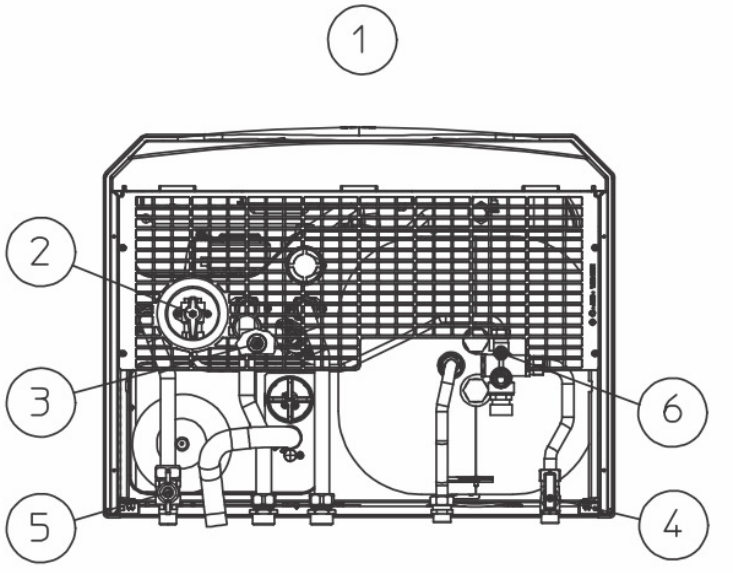


Figure 6—Lower view

Boiler Connections	
Gas Connection	½"
CH Connection	¾"
DHW Connection	½"

1 - Lower view
2 - System filling valve
3 - System draining valve
4 - Cold water inlet valve
5 - Gas cock
6 - Cylinder draining valve

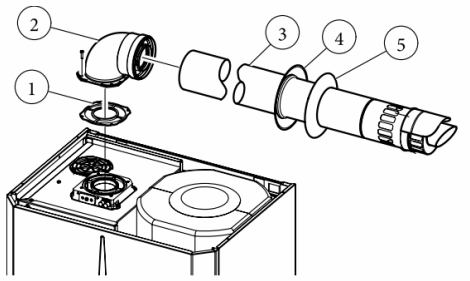
Flue Systems

When the boiler is installed on an external wall, the standard horizontal concentric 60/100 flue kit will normally be used to flue the boiler. This is shown in the diagram.

It is often necessary to install a longer flue system to cater for site conditions. There are several different flue system sizes available for the Victrix Zeus 20/27 boiler.

Horizontal concentric kit 60 /100

Install the bend with flange (2) on the left hole of the boiler inserting the seal (1) with the round protrusions facing downwards in contact with boiler flange and tighten using the screws supplied with the kit.
Fit the smooth male end of the 60/100 concentric terminal pipe (3) until it reaches to the stop on the female end of the bend (2), making sure the internal and external sealing rings are fitted; this will ensure the connection is properly sealed. Additional extensions and bends may be installed if required using the same method.
Ensure that all seals are fitted and that the outer and inner pipes are installed so that all joints are perfectly sealed. Ensure that the terminal is installed the right way up.



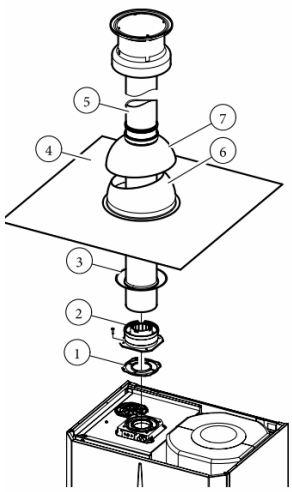
The kit includes:
N° 1 - Gasket (1)
N° 1 - Concentric bend Ø 60/100 (2)
N° 1 - Concentric terminal int./exhaust Ø 60/100 (3)
N° 1 - Internal white wall sealing plate (4)
N° 1 - External grey wall sealing plate (5)

Figure 7—Horizontal concentric kit

A lubricant may assist in overcoming the friction of the seals. Oils and conventional greases are not compatible with the EPDM seals used and should never be used for this purpose. Talc may be used. Please contact RVR for more information.
A rigid supporting clamp should be fitted on each 1.0 metre or 2.0 metre flue extension in all cases. The flue system should be inclined at a minimum slope of 1% so that condensate flows towards the boiler. The elbow above the boiler is the low point of the flue system and the terminal at the outside wall is the high point of the system. The fall should be continuous over the full length of the flue system and the there should be no low points which would allow condensate to build up within the flue pipes. This avoids any drips from the external flue terminal.
The maximum possible overall length after the first bend (2) is 12.9 straight and horizontal meters. See the section on extended flue design for more information.

Vertical concentric kit 60 /100

Install the concentric flange (2) on the left hole of the boiler inserting the seal (1) with the round protrusions facing downwards in contact with boiler flange and tighten using the screws supplied with the kit.
Fit the male end (smooth) of the adapter (3) in the female end of the concentric flange (2) until it reaches the stop on the female end of the flange, making sure the internal and external sealing rings are fitted; this will ensure the connection is properly sealed. Additional extensions and bends may be installed if required using the same method.
Installing the flashing- Replace tiles with the aluminium sheet (5), shaping it to ensure that the rainwater runs off. Position the fixed half-shell (7) on the aluminium tile and insert the intake/exhaust pipe (6). Fit the male end (6)(smooth) of the 60/100 concentric terminal up to the stop on the female end of the adapter(3), making sure that the ring (4) is already fitted; this will ensure hold and joining of the elements making up the kit.



The kit includes :
N° 1 - Gasket (1)
N° 1 - Female concentric flange (2)
N° 1 - Wall sealing plate (3)
N° 1 - Aluminium tile (4)
N° 1 - Concentric terminal int./exhaust Ø 60/100 (5)
N° 1 - Fixed half-shell (6)
N° 1 - Mobile half-shell (7)

Figure 8—Vertical concentric kit

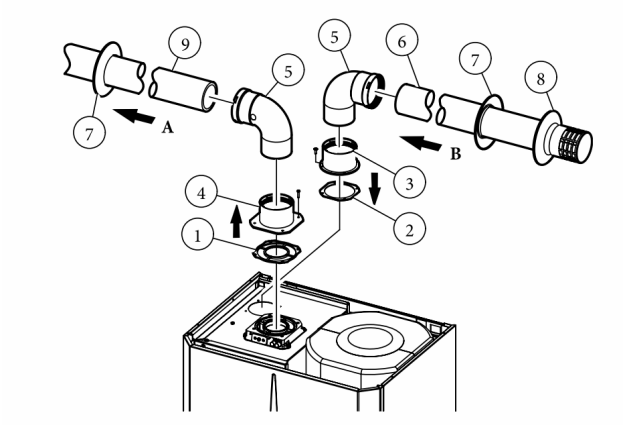
Ensure that all seals are fitted and that the outer and inner pipes are installed so that all joints are perfectly sealed. A lubricant may assist in overcoming the friction of the seals. Oils and conventional greases are not compatible with the EPDM seals used and should never be used for this purpose. Talc may be used. Please contact RVR for more information.
A rigid supporting clamp should be fitted on each 1.0 metre or 2.0 metre flue extension in all cases.
The maximum possible overall length including the terminal is 14.4 straight and horizontal meters.

NB: If the terminal or extension pipes need shortening ensure that the inner pipe protrudes by 5mm with

Separated Flue Systems

Separated 80/80 flue kit

This kit enables separation of the exhaust and air intake pipes as shown in figure 9.
Combustion products are expelled from pipe (A) (in plastic material resistant to acidic condensates). Air is taken in through pipe (B) (also in plastic material) for combustion.
Intake pipe (B) can be installed either on the right or left hand side of the central exhaust pipe (B). Both pipes can be oriented in any direction.



Assembly:
Install the flange (4) on the left hole of the boiler inserting the seal (1), positioning it with the round protrusions downwards in contact with the boiler flange and tighten using the screws supplied with the kit.
Remove the sealing plate from the air intake and replace it with flange (3)inserting seal (2) which is already fitted on the boiler and tighten using the screws supplied.
Insert bends (5) with the male end (smooth) in the female end of the flanges (3&4). Fit the male end of the intake terminal (6) up to the stop on the female end of the bend (5), making sure that the relevant internal and external sealing rings are fitted. Fit the male of the exhaust pipe up to the stop on the female end of the bend, making sure that the internal sealing ring is fitted; this will ensure a seal and joining of the elements making up the kit.

The kit includes:
- *N° 1 - Exhaust gasket (1)*
- *N° 1 - Flange seal (2)*
- *N° 1 - Female intake flange (3)*
- *N° 1 - Female exhaust flange (4)*
- *N° 2 - Bend 90° Ø 80 (5)*
- *N° 1 - Intake terminal Ø 80 (6)*
- *N° 2 - Internal white wall sealing plates (7)*
- *N° 1 - External grey wall sealing plate (8)*
- *N° 1 - Exhaust pipe Ø 80 (9)*

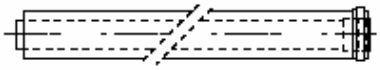
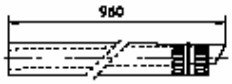
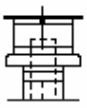
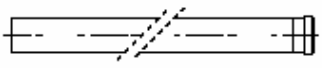
Figure 9—Separated flue kit

A lubricant may assist in overcoming the friction of the seals. Oils and conventional greases are not compatible with the EPDM seals used and should never be used for this purpose. Talc may be used. Please contact RVR for more information.
A rigid supporting clamp should be fitted on each 1.0 metre or 2.0 metre flue extension in all cases. The flue system should be inclined at a minimum slope of 1% so that condensate flows towards the boiler. The elbow above the boiler is the low point of the flue system and the terminal at the outside wall is the high point of the system. The fall should be continuous over the full length of the flue system and the there should be no low points which would allow condensate to build up within the flue pipes. This avoids any drips from the external flue terminal.

The maximum possible overall length without any bends is 36 straight, horizontal meters or 41 straight, vertical meters regardless of whether they are used in intake or exhaust. See the section on extended flue design for more information.

Flue Calculations for More Complex Systems

Each component of the air inlet/flue system has a resistance factor . These are given in the following tables. The resistance factor varies depending on whether the component in question conveys fresh inlet air or hot combustion gases. All boilers have a maximum resistance factor of 100. The sum of all components in the flue system must not exceed the maximum overall resistance factor of 100.

TYPE OF DUCT	Resistance factor (R)	Equivalent length in metres of concentric pipe Ø 60/100	Equivalent length in metres of pipe Ø 80	Equivalent length in metres of pipe Ø 60
Concentric pipe Ø 60/100 length 1 m 	Intake and exhaust 6.4	**1 m**	Intake 7.3 m Exhaust 5.3 m	Exhaust 1.9 m
90° bend concentric Ø 60/100	Intake and exhaust 8.2	**1.3 m**	Intake 9.4 m Exhaust 6.8 m	Exhaust 2.5 m
45° bend concentric Ø 60/100	Intake and exhaust 6.4	**1 m**	Intake 7.3 m Exhaust 5.3 m	Exhaust 1.9 m
Terminal complete with concentric horizontal intake-exhaust Ø 60/100 	Intake and exhaust 15	**2.3 m**	Intake 17.2 m Exhaust 12.5 m	Exhaust 4.5 m
Terminal complete with concentric horizontal intake-exhaust Ø 60/100	Intake and exhaust 10	**1.5 m**	Intake 11.5 m Exhaust 8.3 m	Exhaust 3.0 m
Terminal complete with concentric vertical intake-exhaust Ø 60/100	Intake and exhaust 16.3	**2.5 m**	Intake 18.7 m Exhaust 13.6 m	Exhaust 4.9 m
Terminal complete with concentric vertical intake-exhaust Ø 60/100 	Intake and exhaust 9	**1.4 m**	Intake 10.3 m Exhaust 7.5 m	Exhaust 2.7 m
Concentric adapter from Ø 80/125 to 60/100	Intake and exhaust 5.2	**0.8 m**	Intake 6.0 m Exhaust 4.3 m	Exhaust 1.6 m
Concentric flange Ø 80/125	Intake and exhaust 1.3	**0.2 m**	Intake 1.5 m Exhaust 1.1 m	Exhaust 0.4 m
Pipe Ø 80 length 1 m 	Intake 0.87 Exhaust 1.2	0.1 m 0.2 m	**Intake 1.0 m** **Exhaust 1.0 m**	Exhaust 0.4 m

Flue Calculations for More Complex Systems

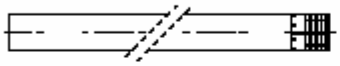
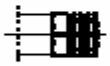
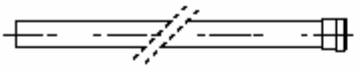
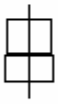
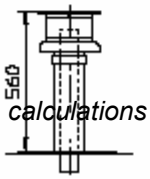
TYPE OF DUCT	Resistance Factor (R)	Equivalent length in metres of concentric pipe Ø 60/100	Equivalent length in metres of pipe Ø 80	Equivalent length in metres of pipe Ø 60
Complete intake terminal Ø 80 length 1 m 	Intake 3	0.5 m	**Intake 3.4 m**	Exhaust 0.9 m
Intake terminal Ø 80 Exhaust terminal Ø 80 	Intake 2.2	0.35 m	**Intake 2.5 m**	Exhaust 0.6 m
	Exhaust 1.9	0.3 m	**Exhaust 1.6 m**	
90° bend Ø 80	Intake 1.9	0.3 m	**Intake 2.2 m**	Exhaust 0.8 m
	Exhaust 2.6	0.4 m	**Exhaust 2.1 m**	
45° bend Ø 80	Intake 1.2	0.2 m	**Intake 1.4 m**	Exhaust 0.5 m
	Exhaust 1.6	0.25 m	**Exhaust 1.3 m**	
Pipe 1 m Ø 60 for ducting 	Exhaust 3.3	0.5 m	Intake 3.8 m Exhaust 2.7 m	**Exhaust 1.0 m**
90° bend Ø 60 for ducting	Exhaust 3.5	0.55 m	Intake 4.0 m Exhaust 2.9 m	**Exhaust 1.1 m**
Adapter Ø 80/60 	Intake and exhaust 2.6	0.4 m	Intake 3.0 m Exhaust 2.1 m	**Exhaust 0.8 m**
Complete vertical exhaust terminal Ø 60 for ducting 	Exhaust 12.2	1.9 m	Intake 14 m Exhaust 10.1 m	**Exhaust 3.7 m**

Table 2—Flue calculations

Component	Resistance	Quantity	Total
80mm Intake pipe	0.87	9	7.83
90˚ air intake bend	1.9	3	5.7
80mm Flue pipe	1.2	6	7.2
90˚ Flue bend	2.6	2	5.2
	Total Flue Resistance		25.93

Example:
Flue system consists of 9m of 80mm air intake pipe with 3 x 90˚ bends and 6m of exhaust pipe with 2 x 90˚ bends. Component Resistances:

In this case the total resistance of the system is less than 100. The flue design is acceptable.

Table 3—Component resistances

Flue Terminal Location

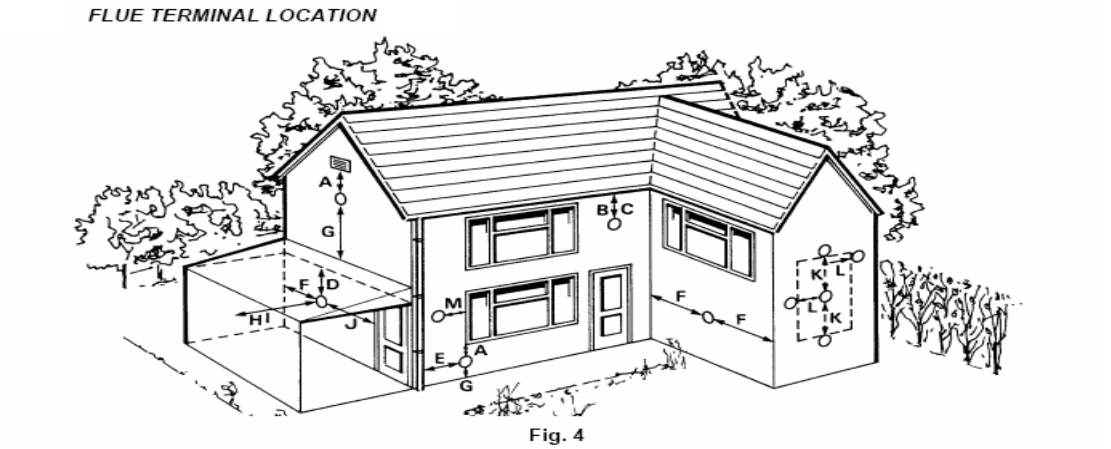


Fig. 4

Terminal Position	Min. Distance
A Directly below an opening, air brick, windows, etc.	300 mm
B Below gutters, soil pipes or drain pipes	75mm
C Below eaves	75mm
D Below balconies or car port roof	75mm
E From a vertical drain pipe of soil pipe	75mm
F From an internal or external corner	75mm
G Above ground, roof or balcony level	300mm
H From a surface facing the terminal	600mm
I From a terminal facing a terminal	1200mm
J From an opening in the car port (door, window) into dwelling	1200mm
K Vertically from a terminal on the same wall	1500mm
L Horizontally from a terminal on the same wall	300mm
M Horizontally from an opening, air brick, window etc.	300mm
Below horizontally hinged windows where exhaust is directed upwards	3000mm
Below horizontally hinged windows where exhaust is not directed upwards	1000mm

Figure 10—Flue terminal location

The flue terminal must be exposed to the external air and the position must allow the free passage of air across it at all times. In certain weather conditions the terminal may emit a plume of steam. Avoid positioning the terminal where this may cause a nuisance. If the terminal is fitted within 850 mm of a plastic or painted gutter or 450 mm of painted eaves or 300 mm of a plastic car port roof, an aluminium shield at least 1 m long should be fitted to the underside of the gutter or painted surface. If the terminal is fitted less than 2 m above a surface to which people have access, the terminal must be protected by a terminal guard.

IMPORTANT— Failure to install flue systems correctly may lead to serious injury or death. Ensure that:

- Only flues specifically designed for condensing boilers and provided by RVR Energy Technology Limited are used.
- The flue slopes slightly towards the boiler by between 1 and 2 degrees to ensure any condensate flows towards the boiler. Failure to do this will result in condensate dripping from the flue terminal.
- The flue is adequately supported along it's length so that it is straight and cannot be moved without using a tool.
- The flue system has no low points where condensate can collect.
- All flue terminals are securely fixed.
- No chemicals, detergents, solvents or liquids of any kind are used in the assembly of the flue system. Talc may be used as a lubricant where necessary.
- All joints and connections are properly assembled to prevent leakage and all seals are properly seated.
- The flue is thoroughly tested for leaks after installation.
- The seals are correctly seated in all joints. Failure to ensure this will cause distortion and leaking of the flue system.

Boiler Location

Boiler Location

The boiler is not suitable for external installation.
The boiler must be installed on a flat vertical wall which is capable of supporting the weight of the boiler.
The boiler can be fitted to or adjacent to a wall comprising of a combustible material without the need for a special thermal insulation barrier.

The boiler may be installed in any room or internal space, although particular attention is drawn to the requirements of the current IEE Wiring Regulations. Where a room sealed boiler is installed in a room containing a bath or shower, it must not be possible for a person using the bath or shower to touch any electrical switch or boiler control utilising mains electricity.
The boiler may be installed in a cupboard or compartment, provided it is correctly designed for that purpose.

Minimum Clearances for Servicing:	
Top	200
Bottom	150
Side	25
Front	600

Table 4 - Clearances for servicing

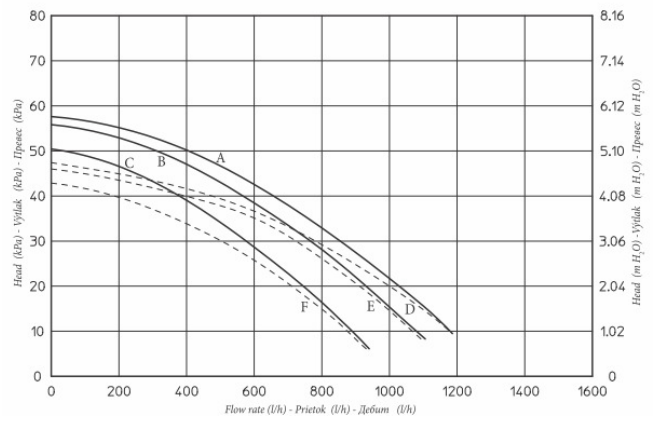
Central Heating System

The boiler is designed for use in a sealed central heating system. The system should be designed to operate with flow temperatures of up to 80°C. When designing the system, the pump head, expansion vessel size, mean radiator temperature, etc. must be taken into account.
The pressure losses in the system must be compatible with the boiler circulation pump. See pump performance graph below:

Pump performance curves

Flow—Head Graph:
The pump head depends on how the system bypass is adjusted.

Victrix Zeus Superior 26kW



Victrix Zeus Superior 32kW

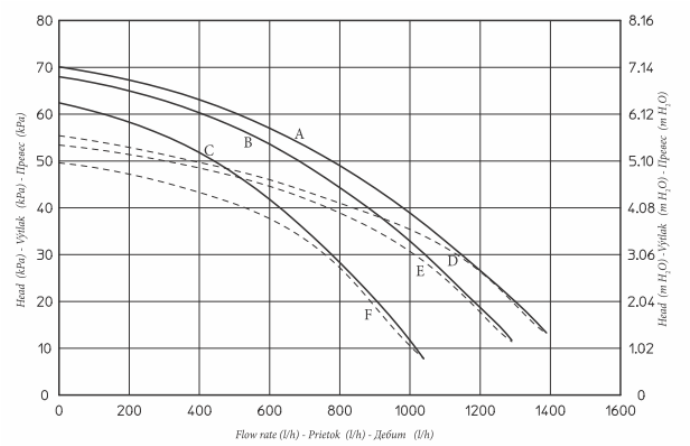


Figure 11– Flow-head graph

A = Head available to the system on the third speed with by-pass closed (adjustment screws tightened fully home)
B = Head available to the system on the second speed with by-pass closed (adjustment screws tightened fully home)
C = Head available to the system on the first speed with by-pass closed (adjustment screws tightened fully home)
D = Total head available to the plant on the third speed (screws tightened by 1.5 revs with respect to the completely loose adjustment screws).
E = Total head available to the plant on the second speed (screws tightened by 1.5 revs with respect to the completely loose adjustment screws).
F = Total head available to the plant on the first speed (screws tightened by 1.5 revs with respect to the completely loose adjustment screws)

System volume - The 7.1 litre expansion vessel incorporated into the boiler is pre-charged to 1.0 bar and is suitable for a sealed heating system with a maximum water content of 71 litres. Above 71 litres, consideration should be given to fitting an additional expansion vessel. To check correct operation of the expansion vessel (s) the system pressure should not be more than 2.5 bar when the system is at maximum operating temperature.

The boiler is supplied with the following components built in:-
Central Heating Pressure relief valve - complying with BS 6759 and set to operate at 3 bar. The discharge pipe must be routed clear of the boiler to a drain, so that it can be seen, but cannot cause injury to persons or property.
A Pressure gauge is included to indicate the pressure of the central heating system.

Plumbing of the Victrix Zeus Superior

The most important components of the system are shown in the diagram below.

- The cold water supply for the water heating side of the system may come from a booster pump or the cold water mains where this is permitted by the local authority.
- A non-return valve must be installed on the cold feed to the boiler. This prevents expanding hot water back-feeding into the cold side of the system.
- The boiler includes an automatic bypass. It is not necessary to make any further provision for system bypasses.
- The boiler condensate outlet must be connected to a drain. Metal pipes must not be used for this purpose as the slightly acidic condensate will lead to rapid corrosion. Plastic must be used for this purpose.

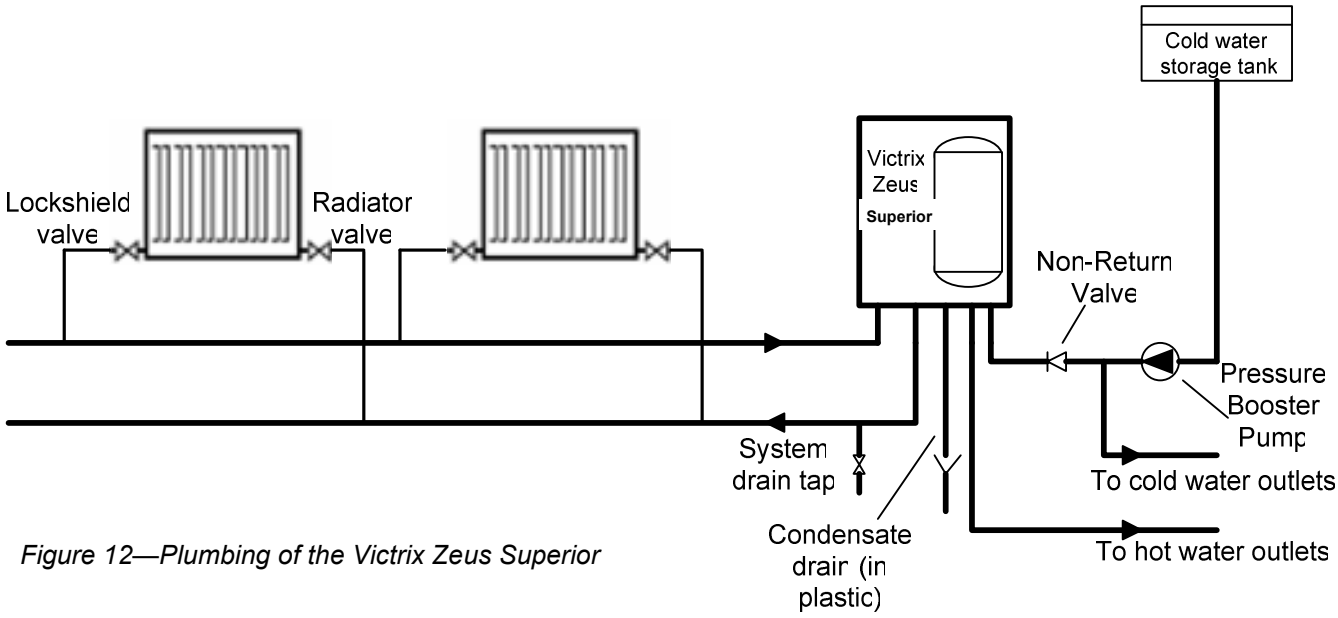


Figure 12—Plumbing of the Victrix Zeus Superior

Filling the central heating system

The system design pressure (cold) should be set to 1.0 bar. This pressure is equivalent to a static head of 10.2 metres of water. Provision should be made to replace water lost from the system. This can be by manual or automatic means.

Filling of the system must be carried out in a manner approved by the local authority. Where allowed, the system may be filled via a temporary connection as shown below or by using the integrated filling valve in the boiler. After filling, always disconnect the flexible hose of the filling loop if used and close the filling valve in the boiler.

All fittings used in the system must be able to withstand pressures up to 3 bar. Drain taps (to BS 2879) must be used to allow the system to be completely drained. The heating system should be thoroughly flushed before the boiler is connected and again after the first heating. If it is necessary to add inhibitor to the central heating system, contact RVR Ltd. for guidance.

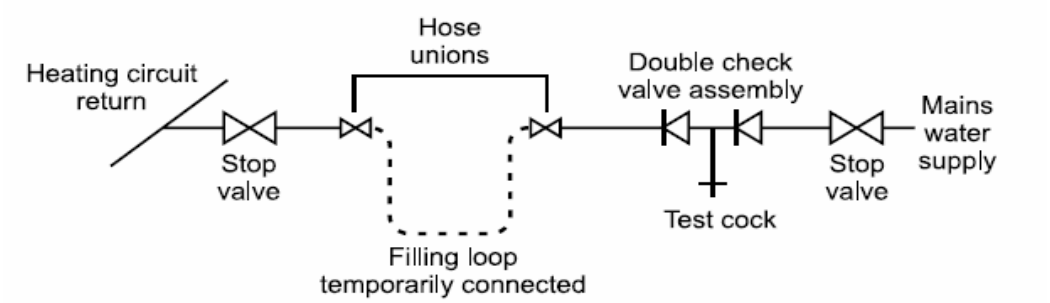


Figure 13—Filling the Central Heating System

Domestic Hot Water System

Mains water pressurised unvented system are generally not permitted in Ireland. A cold water storage tank and a pressure boosting pump will normally provide a pressurised cold water supply. The pressurisation pump should provide a water pressure of between 1 and 3 bar. However, all taps and mixing valves used with the hot water system must be suitable for operating at a pressure of up to 5.5 bar. The use of fittings designed for open, low pressure systems should be avoided as this will lead to excessive water flow rates. To ensure economic use, the pipe runs between the boiler and taps should be in 15 mm copper pipe and be as short as possible. Where possible the pipe work should be insulated to reduce heat loss.

Before the cold water supply pipe is connected to the boiler, it should be thoroughly flushed out to avoid the danger of dirt or foreign matter entering the boiler.
The stored water temperature is adjustable to a maximum of 55°C. In hard water areas this should avoid possible scale build-up. However, if descaling is necessary contact RVR Limited for guidance.

Unvented Hot Water Storage System

The installation is subject to Building Regulations and the Water Bye Laws of the Local Authority.
The Victrix Zeus Superior 26/32kW boiler is supplied with all the components required for a safe and efficient unvented hot water system. An air cushion which is present at the top of the 54l storage vessel provides some of the expansion for the domestic hot water system. The balance is provided by the additional DHW expansion vessel installed within the boiler casing.
NOTE: In the Dublin City Council area, the council requires that the minimum internal diameter of pipes connected to the boiler DHW connections should not be less that 13mm. As 1/2" thermoplastic pipe does not provide the minimum diameter, the minimum suitable thermoplastic pipe size is 3/4"

Discharge pipe - The discharge pipes from the expansion relief valves must be routed to a tundish in 1/2" (or 15 mm)pipe. The discharge pipe work from both relief valves may be joined together in the same sized pipe, providing at least 3/4" (or 22 mm) pipe work is connected downstream of the tundish.

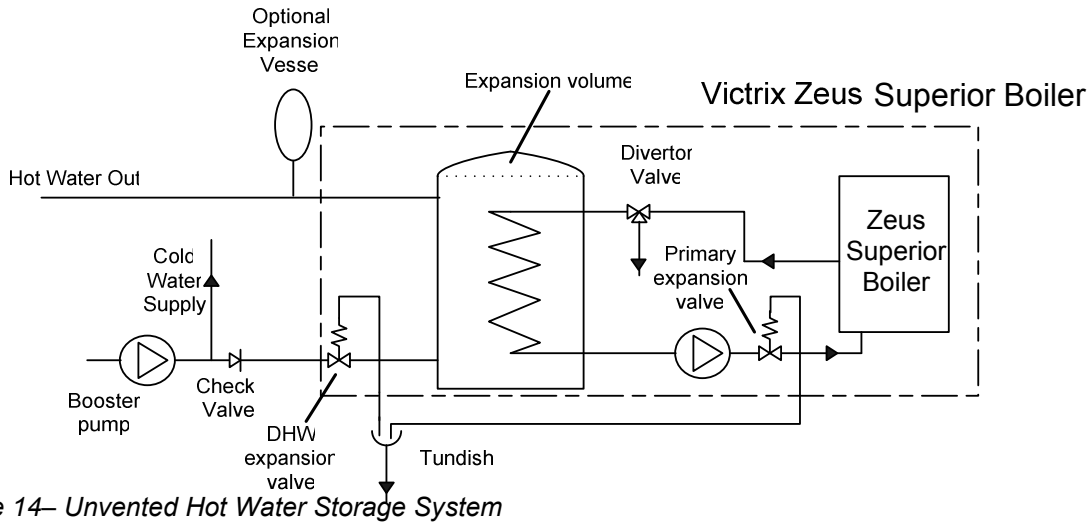


Figure 14– Unvented Hot Water Storage System

Tundish - The tundish must be positioned within 500 mm of the appliance, so that it is visible to the user and away from electrical devices. The minimum size of the discharge pipe downstream of the tundish is given in the following table.

Table 1	Sizing of copper discharge pipe 'D2' - refer also to Fig. 9			
Valve outlet size	Minimum size of discharge pipe 'D1' to tundish	Minimum size of discharge pipe 'D2' from tundish	Maximum resistance allowed, expressed as a length of straight pipe (i.e. no elbows or bends)	Resistance created by each elbow or bend
G½	15mm (1/2")	22mm (3/4")	up to 9 m	0.8 m
		28mm (1")	up to 18 m	1.0 m
		35mm (11/4")	up to 27 m	1.4 m

Table 5—Sizing of copper discharge pipe

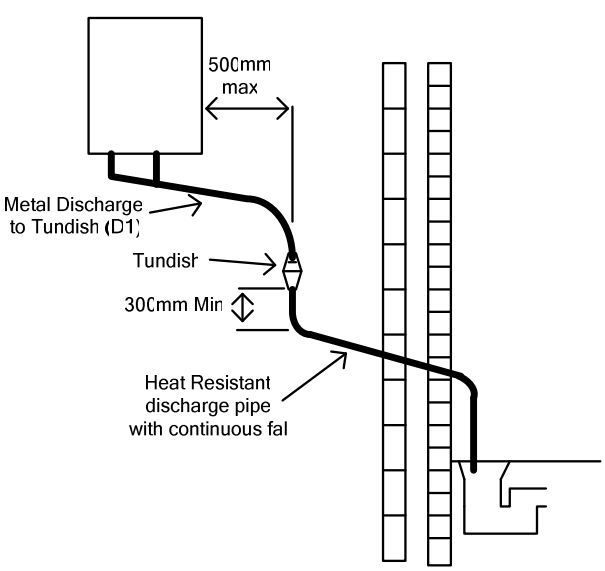
Tundish Installation

The discharge pipework from the tundish:-

1. Shall fall continuously through its length.
2. Shall be of a heat resistant material, e.g. metal.
3. Shall not be fitted with any valves or taps.
4. Shall discharge to a safe visible position, e.g. onto the surface of an external wall or into a gulley.
5. Shall have a minimum of 300 mm straight pipework directly from the tundish.

Note: Where children may play or otherwise come into contact with discharges, a wire cage or similar guard must be positioned to prevent contact whilst maintaining visibility.

Please see the diagrams below for suggested methods of terminating the discharge pipe safely. Where a single pipe serves a number of discharges, such as in blocks of flats, the number served should be limited to not more than 6 systems so that any installation can be traced reasonably easily. The single common discharge pipe should be at least one pipe size larger than the largest individual discharge pipe to be connected. If the system is installed where discharges from safety devices may not be apparent, i.e. in dwellings occupied by blind, infirm or disabled people, consideration should be given to the installation of an electronically operated device to warn when discharge takes place.



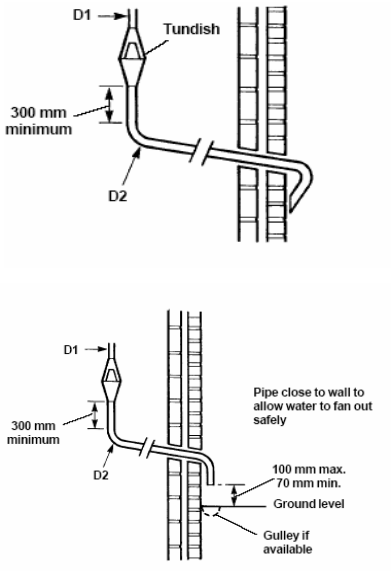
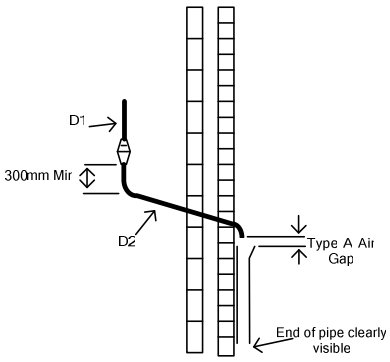


Figure 15– Tundish installations

High Level Termination

At high level, discharge onto a roof is acceptable providing the roof is capable of withstanding high temperatures and there is a distance of 3 m from any plastic guttering systems that would collect such dis-



Example:-

The example below is for a G½ temperature relief valve with a discharge pipe (D2) having four elbows and a length of 7 m from the tundish to the point of discharge.

From Table 5:-

Maximum resistance allowed for a straight length of 22 mm copper discharge pipe (D2) from a G½ temperature relief valve is 9 m. Subtract the resistance for four 22 mm elbows of 0.8 m each = 3.2 m. Therefore the maximum permitted length equates to 9 - 3.2 = 5.8 m

5.8 m is less than the actual length of 7 m therefore calculate the next largest size.

Maximum resistance allowed for a straight length of 28 mm pipe (D2) from a G½ temperature relief valve equates to 18 m.

Subtract the resistance for four 28 mm elbows at 1.0 m each = 4 m.

Therefore the maximum permitted length equates to 18 - 4 = 14 m

As the actual length is 7 m, a 28 mm (D2) copper pipe will be satisfactory.

Fault Signals

Fault	Code
Ignition block	01
Safety thermostat block (over temperature) flame control fault	02
Flue safety thermostat block	03
Contacts resistance block	04
Flow probe fault	05
Insufficient system pressure	10
Cylinder probe fault	12
Configuration error	15
Fan fault	16
Parasite flame block	20
Return probe fault	23
Push button control panel error	24
Insufficient circulation	27
Loss of remote control communication	31
Low power supply voltage	37
Loss of flame signal	38

Table 6—Fault Signals

Important: the error codes 31, 37, 38 are not shown on the CAR and Super CAR display.

1. Ignition block. The boiler ignites automatically with each demand for room central heating or hot water production. If this does not occur within 10 seconds, the boiler remains in stand-by for 30 seconds, try again and if the second attempt fails it will go into “ignition block” (ERR01). To eliminate “ignition block” the Reset button “C” must be pressed. The fault can be reset 5 times consecutively, after which the function in inhibited for at least one hour. One attempt is gained every hour for a maximum of 5 attempts. By switching the appliance on and off the 5 attempts are re-acquired. On commissioning or after extended inactivity it may be necessary to eliminate the “ignition block”. If this occurs frequently, contact a qualified technician for assistance.

2. Safety thermostat block (over-temperature). During operation, if a fault causes excessive overheating internally, or an error occurs in the flame control section, an over-temperature block is triggered in the boiler (ERR02). To eliminate “over-temperature block” the Reset button “C” must be pressed. If this occurs frequently, contact a qualified technician for assistance.

3. Flue safety thermostat block This occurs in the case of partial internal obstruction (due to the presence of lime scale or dirt) or external blocking (combustion residues) in the condensation module. To eliminate the “flue safety thermostat block” the Reset button “C” must be pressed. Call an authorised technician to remove the obstructions.

4. Contacts resistance block. This occurs in the case of faults to the safety thermostat (over-temperature) or fault in the flame control. The boiler does not start and a technician must be called.

5. Flow probe error. If the board detects an error on the system NTC flow probe (code 05) the boiler will not start; contact a qualified technician for assistance.

10. Insufficient system pressure. Water pressure inside the central heating system that is sufficient to guarantee the correct functioning of the boiler is not detected. Check on the boiler manometer (1) that the system pressure is between 1 - 1.2 bar and restore the correct pressure if necessary.

12. Cylinder probe fault If the board detects a fault on the cylinder probe, the boiler cannot produce domestic hot water. A qualified technician must be called for assistance.

15. Configuration error. If the board detects an error on the electric wiring on first power supply, the boiler will not start. If normal conditions are restored the boiler restarts without having to be reset. The defect

Fault Signals

could be due to a fault in the flue flow meter detected after restoring the electric mains voltage. If this persists, contact a qualified technician for assistance.

16. Fan fault. This occurs if the fan has a mechanical or electrical fault. To eliminate the "fan fault" the Reset button "C" must be pressed. If this fault persists, contact a qualified technician for assistance.

20. Parasite flame block. This occurs in case of a leak on the detection circuit or fault in the flame control unit. The boiler can be reset in order to allow a new ignition attempt. If the boiler does not start, contact a qualified technician for assistance.

23. Return probe error. In this condition the boiler does not correctly control the pump if set as "Auto". The boiler continues functioning but to eliminate the error, contact a qualified technician for assistance.

24. Push button control panel fault. This occurs when the circuit board detects a fault on the push button control panel. If normal conditions are restored the boiler restarts without having to be reset. If this fault persists, contact a qualified technician for assistance.

27. Insufficient circulation. This occurs if there is overheating in the boiler due to insufficient water circulating in the primary circuit; the causes can be:

- low circulation; check that no interception devices are closed on the central heating circuit and that the system is free of air (deaerated);
- circulating pump blocked; free the circulating pump.

If this occurs frequently, contact a qualified technician for assistance.

31. Loss of remote control communication. This occurs in the case of connection to a remote control that is not compatible or if there is a loss of communication between the boiler and CAR remote control or Super CAR remote control. Try the connection procedure again by turning the boiler off and then back on again. If the Remote Control is still not detected on re-starting the boiler will switch to local operating mode, i.e. using the controls on the boiler itself. In this case the boiler cannot activate the "CH ON" function. To make the boiler function in "CH ON" mode, activate the "P33" function present inside the "M3" menu. If this occurs frequently, contact a qualified technician for assistance.

37. Low power supply voltage This occurs when the power supply voltage is lower than the allowed limits for the correct functioning of the boiler. If normal conditions are restored, the boiler restarts without having to be reset. If this occurs frequently, contact a qualified technician for assistance.

38. Loss of flame signal. This occurs when the boiler is ignited correctly and the burner flame switches off unexpectedly; a new attempt at ignition is performed and if normal conditions are restored, the boiler does not have to be reset (this error can be checked in the list of errors P19 present in the "M1" menu). If this incident occurs frequently, contact a qualified technician for assistance.

Other maintenance operations :

Lack of water in boiler.

Not enough water pressure detected in the heating circuit to guarantee correct boiler operation. Make sure that the pressure in the system is between 1 and 1.2 bar. N.B. Close the valve on completion. If pressure valves reach around 3 bar the safety valve may be activated. In this case contact a professional technician for assistance. In the event of frequent pressure drops, contact qualified personnel for assistance to eliminate system leakage.

System flow NTC sensor fault.

If the unit detects a problem with the system delivery NTC sensor, the boiler will not start; call a qualified technician.

Domestic circuit NTC sensor fault.

If the unit detects a problem in the domestic circuit NTC sensor, the boiler will not produce domestic hot water; call a qualified technician.

No water circulating.

This occurs if there is overheating in the boiler due to insufficient water circulation through the boiler - check that no shutoff devices are closed and that the system is free of air . Check that the circulating pump is running freely. If necessary, remove the pump cover screw and manually rotate the pump impellor using a flat bladed screwdriver. If lockout occurs repeatedly, contact a qualified technician for assistance.

Draining the system.

To drain the boiler, use the special drain cock. Before draining, ensure that the filling valve is not connected closed.

Draining the boiler.

To drain the boiler, use the special drain cock. N.B.: Before carrying out this operation, close the boiler cold water inlet cock and open any domestic circuit hot water cock to allow air to enter the boiler.

Using the Boiler

Warnings

Never expose the wall-mounted boiler to direct vapours from a cooking surface. Use of the boiler by unskilled persons or children is strictly prohibited.
Never touch the flue extraction terminal (if fitted) due to the risk of burning caused by high temperatures;
For safety purposes, check that the concentric air intake/flue exhaust terminal (if fitted), is not blocked. If temporary shutdown of the boiler is required, proceed as follows:
a) drain the heating system if anti-freeze is not used;
b) shut off all electrical, water and gas supplies.
When building or renovation work is carried out in the vicinity of the flue outlet, switch off the boiler and on completion of work ensure that a qualified technician checks the safety of the installation. Never clean the appliance or connected parts with flammable substances. Never leave containers or flammable substances in the same environment as the appliance.

Electrical Safety

- never touch the appliance with wet hands or other parts of the body and never touch when barefoot.
- never pull electrical cables or leave the appliance exposed to atmospheric agents (rain, sunlight, etc.);
- the appliance power supply cable must never be replaced by the user;
- in the event of damage to the cable, switch off the appliance and contact a qualified service technician.
- in the event of prolonged periods when the boiler is not in use, turn off the main power switch.

Antifreeze functions:
The boiler is equipped with an anti-freeze system in both central heating and hot water modes:
When the temperature measured in the central heating system falls below 4 C, the boiler is automatically fired until a boiler temperature of 35ºC is achieved.
When the temperature measured in the hot water tank falls below 4 C, the boiler is automatically fired until a boiler temperature of 8ºC is achieved. The anti-freeze function is only guaranteed if:
- the boiler is correctly connected to gas and electricity power supply circuits;
- the boiler is powered constantly;
- the boiler is not in stand-by
- the boiler is not in no ignition block (See Error 01 on Page 19);
- the boiler essential components are not faulty.

In these conditions the boiler is protected against freezing to an environmental temperature of -5°C.

Weather compensation (Optional)
The boiler is prepared for the application of the external weather compensation probe, below, which is available as an optional kit. The probe can be connected directly to the boiler electrical system and allows the max. system flow temperature to be automatically decreased when the external temperature increases, in order to adjust the heat supplied to the system according to the change in external temperature. The external probe always operates when connected, regardless of the presence or type of room thermostat used. The correlation between system flow temperature and external temperature is determined by the parameters set in menu “M5” under “P66” according to the curves represented in the diagram (Figure 18). The electric connection of the external probe must be made on clamps 38 and 39 on the boiler circuit board, see wiring diagram page 28.

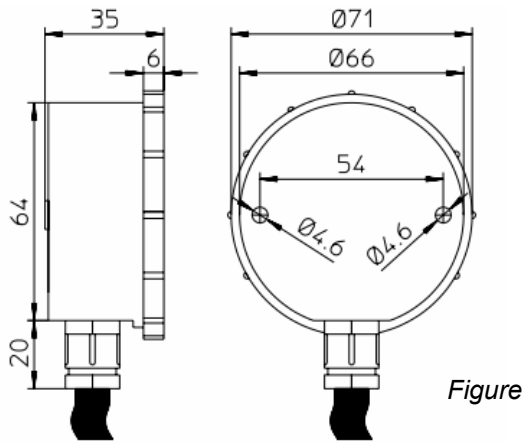


Figure 17—Weather compensation probe

Description of Functioning States

SUMMER Summer functioning mode in progress without request. Boiler in stand-by for domestic hot water request.
WINTER Winter functioning mode in progress without request. Boiler in stand-by for domestic hot water or central heating request.
DHW ON Domestic hot water mode in progress. Boiler functioning, domestic hot water heating in progress.
CH ON Central heating mode in progress. Boiler functioning, central heating in progress.
F3 Anti-freeze mode in progress. Boiler functioning to restore the minimum safety temperature against boiler freezing.
CAR OFF Remote Control (Optional) off.
DHW OFF With domestic hot water priority disabled (indicator 15 off), the boiler only functions in room central heating mode for duration of 1 hour, however keeping the domestic hot water at minimum temperature (20°C), after which the boiler goes back to the normal functioning, previously set.
In the case of use with Super CAR with the functioning period in reduced D.H.W. Timer mode, DHW OFF will appear on the display and indicators 15 and 2 switch off (see Super CAR instructions manual).
F4 Post ventilation in progress. Fan in function after a request for domestic hot water or central heating in order to evacuate residual fumes.
F5 Post circulation in progress. Pump in function after a request for domestic hot water or central heating in order to cool the primary circuit.
P33 With Remote Control (Optional) or environment thermostat (TA) (Optional) in block, the boiler functions all the same in central heating mode. (Can be activated through the “Customisation” menu. It allows to activate the central heating even if the Remote Control or TA are out of order).
STOP Reset attempts finished. Wait for 1 hour to re-acquire 1 attempt. (See Ignition block Error 01).
ERR xx Fault present with relative error code. The boiler does not work. (see fault signals on page 20).
SET During the rotation of the domestic hot water temperature selector switch (1 Fig 16, page 19) view the state of the adjustment of the domestic hot water temperature in progress.
During rotation of the central heating selector switch (3 Fig 16, page 19) the adjustment status of the boiler flow temperature for central heating is displayed.
In presence of the external probe (optional) replace the “SET” item.
The value that appears is the correction of the flow temperature with respect to the functioning curve set by the external probe. See OFFSET on external probe graphics.
F8 System deaeration in progress.
During this phase, which lasts 18 hours, the boiler pump is started at pre-established intervals, thus allowing deaeration of the central heating system.
F9 Only in the case of use with Super CAR, does it allow to activate the anti-legionella function, which takes the temperature of the water in the cylinder to 65°C for 15 minutes. (see Super CAR instruction manual).

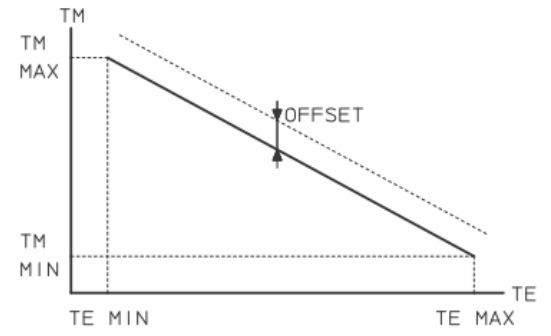


Figure 18— External probe graphic

Solar Panels Coupling Function
The boiler is designed to receive pre-heated water from a system of solar panels up to a maximum temperature of 65°C. In each case it is always necessary to install a mixer valve on the hydraulic circuit upstream from the boiler. Set the “P71” function on “P71.2” (Page 31).
When the boiler inlet water is at a temperature that is equal or greater with respect to that set by the domestic hot water selector switch “SET”, the boiler does not switch on.

Using the Boiler

Summer: in this mode the boiler functions only to heat domestic hot water. The temperature is set using the selector switch (1) and the relative temperature is shown on the display (24) by means of the indicator (2) and the “SET” indication appears (Figure 19). By turning the selector switch (1) in a clockwise direction the temperature increases and in an anti-clockwise direction it decreases.

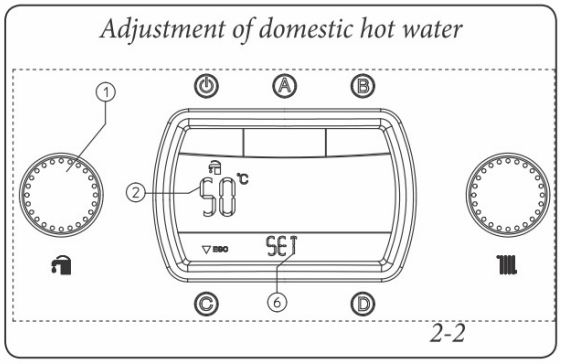


Figure 19

“DHW ON” appears on the display (24) on the status indicator (6) and at the same time as burner ignition the flame presence indicator switches on (8) with relative power scale and the indicator (9 and 7) with the instantaneous outlet temperature from the primary heat exchanger.

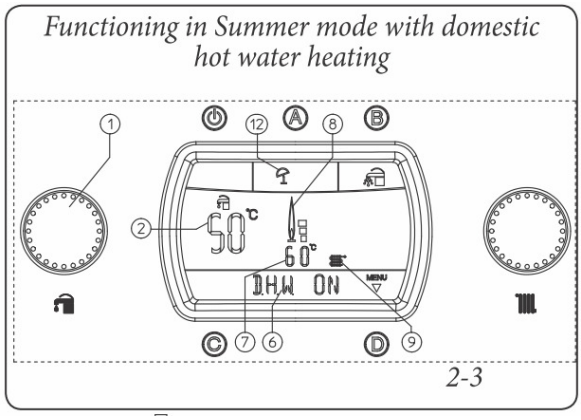


Figure 20

Winter: in this mode the boiler functions both for heating domestic hot water and central heating. The temperature of the domestic hot water is always adjusted using the selector switch (1), the central heating temperature is adjusted using the selector switch (3) and the relative temperature is shown on the display (24) using the indicator (4) and the “SET” indication appears (Figure 21). By turning the selector switch (3) in a clockwise direction the temperature increases and in an anti-clockwise direction it decreases.

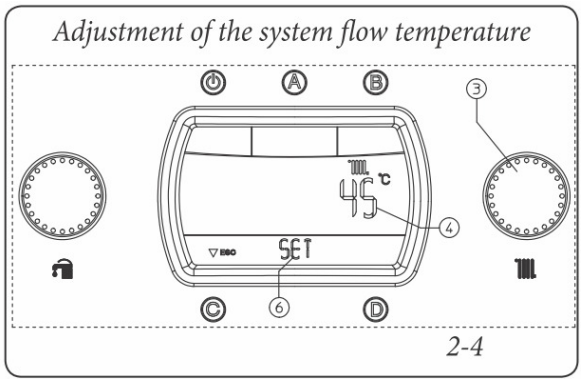


Figure 21

Using the Boiler

During the request for room heating “CH ON” appears on the display (24) on the status indicator (6) and at the same time as burner ignition the flame presence indicator switches on (8) with relative power scale and the indicator (9 and 7) with the instantaneous outlet temperature from the primary heat exchanger. In the central heating phase, if the temperature of the water contained in the plant is sufficient to the radiators, the boiler can only function wit the activation of the boiler pump.

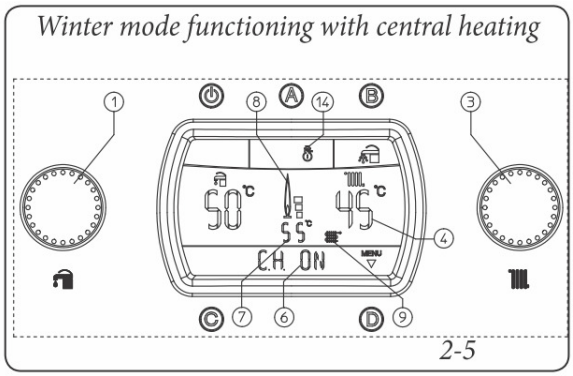


Figure 22

Operation with Comando Amico Remoto remote control (CAR) (Optional). In the case of connection to the CAR remote control, the boiler automatically detects the display and the symbol appears on the display. From this moment all controls and adjustments are referred to the CAR remote control. The stand-by button, the reset button “C”, the menu entry button “D” and the Domestic hot water priority selection button “B” however remain active”.
Important: if the boiler is put into stand-by (10) the “CON” connection error symbol will appear on the CAR remote control. The CAR remote control is however powered constantly so as not to loose memorised programs.
Operation with Super Comando Amico Remoto remote control (Super CAR) (Optional).
In the case of connection to the Super CAR remote control, the boiler automatically detects the display and the symbol appears on the display. From this moment it is possible to make adjustments indifferently from the Super CAR remote control or the boiler. Except for the central heating temperature that is shown on the display but managed by the Super CAR remote control.
Important: If the boiler is put into stand-by (10) the “ERR>CM” connection error symbol will appear on the Super CAR. The Super CAR remote control is however powered constantly so as not to loose memorised programs.
Domestic hot water priority function By pressing button “B” the D.H.W. priority function is activated, which is marked by the switch-off of the symbol (15) on the display (24). The disabled function keeps the water contained in the cylinder at a temperature of 20°C for 1 hour, giving the functioning priority to room central heating.
Functioning with weather compensation probe (Figure 23 below) optional. In the case of a system with optional external probe, the boiler flow temperature for central heating is managed by the external probe depending on the external temperature measured (See page 30-32 parameters and information menu under “P66” and page 22 also). It is possible to modify the flow temperature from -15°C to +15°C with respect to the adjustment curve (Figure 18; Offset value) . This correction, which can be activated using selector switch (3) is kept active for any external temperature measured. The modification of the offset temperature is displayed using the indicator (7). The indicator (4) shows the current flow temperature and after a few seconds from the modification it is updated with the new correction. The “SET” indication appears on the display (Figure 22). By turning the selector switch (3) in a clockwise direction the temperature increases and in an anti-clockwise direction it decreases.

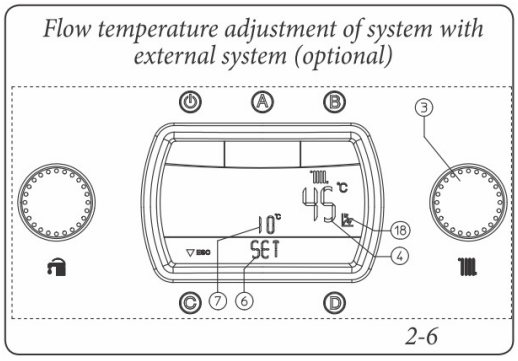


Figure 23

Using the Boiler

During the request for central heating “CH ON” appears on the display (24) on the status indicator (6) and at the same time as burner ignition the flame presence indicator switches on (8) with relative power scale and the indicator (9 and 7) with the instantaneous outlet temperature from the primary heat exchanger. In the central heating phase, if the temperature of the water contained in the plant is sufficient to the radiators, the boiler can only function with the activation of the boiler pump.

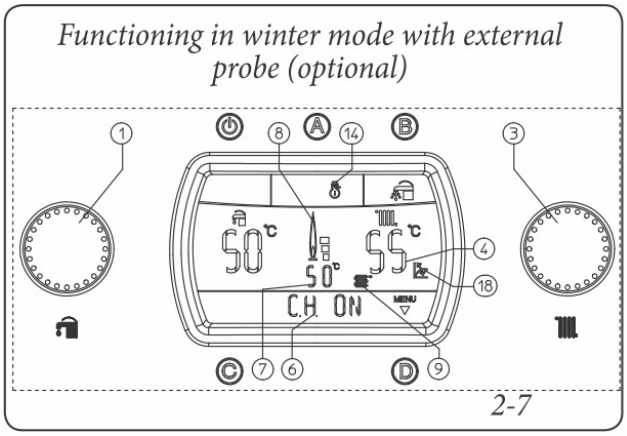


Figure 24

From this moment the boiler functions automatically. With no demand for heat (central heating or domestic hot water production) the boiler goes to “stand-by” function, equivalent to the boiler being powered without presence of flame.

N.B.: The boiler may start-up automatically if the anti-freeze function is activated (13). Moreover, the boiler can function for a brief period of time after a withdrawal of domestic hot water in order to take the domestic hot water temperature back into temperature.

Attention: with the boiler in stand-by mode hot water cannot be produced and the safety systems cannot be guaranteed, such as: pump anti-block, anti-freeze and three way anti-block.

BOILER SHUTDOWN.

Switch the boiler off by pressing the “ ⏻ ”, button, disconnect the omni-polar switch outside of the boiler and close the gas cock upstream from the appliance.

Should the boiler be left unused for prolonged periods, switch off the time clock, yet leave the main power switch on, as this allows the pumps in the boiler to circulate periodically.

RESTORE CENTRAL HEATING SYSTEM PRESSURE.

Periodically check the system water pressure. The boiler pressure gauge should read a pressure between 1 and 1.2 bar. If the pressure falls below 1 bar (with the circuit cool) restore normal pressure via the valve located at the bottom of the boiler (See Fig on Page 8).

N.B.: close the valve after the operation. If pressure values reach around 3 bar the safety valve may be activated. In this case contact a professional technician for assistance.

In the event of frequent pressure drops, contact qualified staff for assistance to eliminate the possible system leakage.

SYSTEM DRAINING.

To drain the boiler, use the special draining valve (See Figure 6 on Page 8) Before draining, ensure that the filling valve is closed.

DRAINING THE BOILER.

To drain the boiler, use the special draining valve (See Figure 6 on Page 8). N.B.: before performing this operation close the boiler cold water inlet cock and open hot water cock in the domestic water system in order to allow water to enter the boiler.

Annual Maintenance Procedures

The following checks and maintenance should be performed at least once a year.
- Clean the flue side of the heat exchanger.
- Clean the main burner.
- Make a visual inspection of the flue extraction hood for wear or corrosion.
- Ensure correct ignition and operation.
- Ensure correct settings of the burner in domestic water and heating modes.
- Verify correct operation and adjustment of the boiler, in particular:
    - operation of the electrical main switch on the boiler;
    - operation of the system control thermostat;
    - operation of the domestic water control thermostat.
- Ensure gas soundness of the gas intake circuit; insert a “U” or digital type pressure gauge in the pressure test point upstream of the gas valve and then close the boiler shutoff valve. No pressure variation must occur in the next five minutes on the gauge.
- Ensure activation of the device for protection against the ionisation flame control gas; activation time must be less than ten seconds
- Visually inspect to check for leakage of water or oxidation of fittings.
- Check visually that the water safety valve outlets are not blocked and that the tundish is clear.
- Check that the charge of the expansion vessel after discharging system pressure to the zero setting (check via boiler pressure gauge), is at 1,0 bar.
- Check that the system static pressure (in cold conditions and after system recharging via the filling valve) is between 1 and 1.2 bar.
- Check visually that the safety and control devices have not been tampered with and/or shorted, in particular:
    - temperature safety thermostat;
    - air pressure switch.
- Check the integrity of boiler Magnesium Anode.
- Ensure correct maintenance and condition of the electrical installation with particular reference to:
    - electrical cables must be correctly routed
    - no traces of black marking or burns

Decommissioning:
In the event of permanent shutdown of the boiler, contact professional personnel for the procedures and ensure that the electrical, water and gas supply lines are shut off and disconnected.

Casing Cleaning:
Use damps cloths and neutral detergent to clean the boiler casing. Never use abrasive or powder detergents.

Variable Heat Output

Victrix Zeus Superior 26kW:

			METHANE (G20)			BUTANE (G30)			PROPANE (G31)		
HEAT OUT-PUT	HEAT OUT-PUT		BURNER GAS FLOW RATE	PRESS. BURNER NOZZLES		BURNER GAS FLOW RATE	PRESS. BURNER NOZZLES		BURNER GAS FLOW RATE	PRESS. BURNER NOZZLES	
(kW)	(kcal/h)		(m^3/h)	(mbar)	(mm H_2O)	(kg/h)	(mbar)	(mm H_2O)	(kg/h)	(mbar)	(mm H_2O)
25,8	22188	D.H.W.	2,85	5,40	55,1	2,12	5,50	56,1	2,09	6,50	66,3
25,0	21500		2,76	5,12	52,2	2,06	5,17	52,7	2,02	6,14	62,6
24,0	20640		2,65	4,78	48,7	1,98	4,76	48,6	1,94	5,70	58,1
23,9	20554		2,64	4,75	48,4	1,97	4,72	48,2	1,93	5,66	57,7
22,0	18920		2,43	4,14	42,2	1,81	4,02	41,0	1,78	4,88	49,8
21,0	18060		2,32	3,83	39,1	1,73	3,67	37,4	1,70	4,50	45,9
20,0	17200	CEN. HEAT. + D.H.W.	2,21	3,54	36,1	1,65	3,34	34,0	1,62	4,13	42,1
19,3	16590		2,13	3,34	34,0	1,59	3,11	31,8	1,56	3,88	39,5
18,0	15480		1,99	2,99	30,5	1,48	2,73	27,8	1,46	3,44	35,1
17,0	14620		1,88	2,73	27,8	1,40	2,45	25,0	1,38	3,12	31,8
16,0	13760		1,77	2,48	25,3	1,32	2,18	22,3	1,30	2,82	28,7
15,0	12900		1,66	2,24	22,8	1,24	1,94	19,7	1,22	2,53	25,8
14,0	12040		1,55	2,01	20,5	1,16	1,70	17,4	1,14	2,25	22,9
13,0	11180		1,44	1,79	18,3	1,08	1,49	15,2	1,06	1,99	20,3
12,0	10320		1,33	1,58	16,1	1,00	1,29	13,1	0,98	1,75	17,8
11,0	9460		1,23	1,38	14,1	0,91	1,10	11,2	0,90	1,51	15,4
10,0	8600		1,12	1,19	12,2	0,83	0,93	9,5	0,82	1,30	13,2
9,0	7740		1,01	1,02	10,4	0,75	0,78	8,0	0,74	1,10	11,2
8,0	6880		0,90	0,85	8,6	0,67	0,64	6,5	0,66	0,91	9,3
7,0	6020		0,79	0,69	7,0	0,59	0,52	5,3	0,58	0,74	7,5
6,0	5160		0,68	0,54	5,5	0,50	0,41	4,2	0,50	0,58	5,9
5,0	4300		0,57	0,40	4,1	0,42	0,32	3,3	0,42	0,44	4,5
4,7	4042		0,53	0,36	3,7	0,40	0,30	3,1	0,39	0,40	4,1

Table 7—Heat Output Zeus Superior 26kW

N.B.: Pressure values specified in the tables indicate the difference of pressure values between the gas valve outlet and the combustion chamber. Adjustments are carried out using a differential pressure gauge.

Victrix Zeus Superior 32kW:

		METHANE (G20)			BUTANE (G30)			PROPANE (G31)		
HEAT OUT-PUT	HEAT OUT-PUT	BURNER GAS FLOW RATE	PRESS. BURNER NOZZLES		BURNER GAS FLOW RATE	PRESS. BURNER NOZZLES		BURNER GAS FLOW RATE	PRESS. BURNER NOZZLES	
(kW)	(kcal/h)	(m^3/h)	(mbar)	(mm H_2O)	(kg/h)	(mbar)	(mm H_2O)	(kg/h)	(mbar)	(mm H_2O)
32,0	27520	3,49	1,53	15,6	2,61	1,88	19,2	2,56	2,38	24,3
31,0	26660	3,38	1,44	14,7	2,52	1,76	17,9	2,48	2,20	22,4
30,0	25800	3,27	1,35	13,8	2,44	1,64	16,7	2,40	2,03	20,7
29,0	24940	3,16	1,27	12,9	2,36	1,53	15,6	2,32	1,87	19,1
28,0	24053	3,05	1,18	12,0	2,28	1,42	14,5	2,24	1,71	17,5
27,0	23220	2,94	1,10	11,2	2,20	1,32	13,4	2,16	1,57	16,0
26,0	22360	2,83	1,03	10,5	2,12	1,22	12,4	2,08	1,43	14,6
25,0	21500	2,73	0,95	9,7	2,03	1,13	11,5	2,00	1,30	13,3
24,0	20640	2,62	0,88	9,0	1,95	1,04	10,6	1,92	1,18	12,0
23,0	19780	2,51	0,81	8,3	1,87	0,95	9,7	1,84	1,07	10,9
22,0	18920	2,40	0,75	7,6	1,79	0,87	8,9	1,76	0,96	9,8
21,0	18060	2,29	0,69	7,0	1,71	0,79	8,1	1,68	0,86	8,8
20,0	17200	2,19	0,63	6,4	1,63	0,72	7,4	1,61	0,76	7,8
19,0	16340	2,08	0,57	5,8	1,55	0,65	6,7	1,53	0,68	6,9
18,0	15480	1,97	0,52	5,3	1,47	0,59	6,0	1,45	0,60	6,1
17,0	14620	1,87	0,47	4,8	1,39	0,53	5,4	1,37	0,53	5,4
16,0	13760	1,76	0,42	4,3	1,31	0,47	4,8	1,29	0,46	4,7
15,0	12900	1,65	0,37	3,8	1,23	0,42	4,3	1,21	0,40	4,1
14,0	12040	1,54	0,33	3,4	1,15	0,37	3,8	1,13	0,35	3,6
13,0	11180	1,44	0,29	2,9	1,07	0,33	3,4	1,05	0,31	3,1
12,0	10320	1,33	0,25	2,6	0,99	0,29	3,0	0,97	0,27	2,8
11,0	9460	1,22	0,22	2,2	0,91	0,25	2,6	0,90	0,24	2,4
10,0	8600	1,11	0,18	1,9	0,83	0,22	2,3	0,82	0,22	2,2
9,0	7740	1,00	0,15	1,6	0,75	0,19	2,0	0,74	0,20	2,0
8,0	6880	0,89	0,13	1,3	0,67	0,17	1,7	0,66	0,19	2,0
7,0	6020	0,78	0,10	1,0	0,58	0,15	1,5	0,58	0,19	1,9
6,9	5934	0,77	0,10	1,0	0,58	0,15	1,5	0,57	0,19	1,9

Table 8—Heat Output Zeus Superior 32kW

Victrix Zeus Superior 26/32kW Wiring Diagram

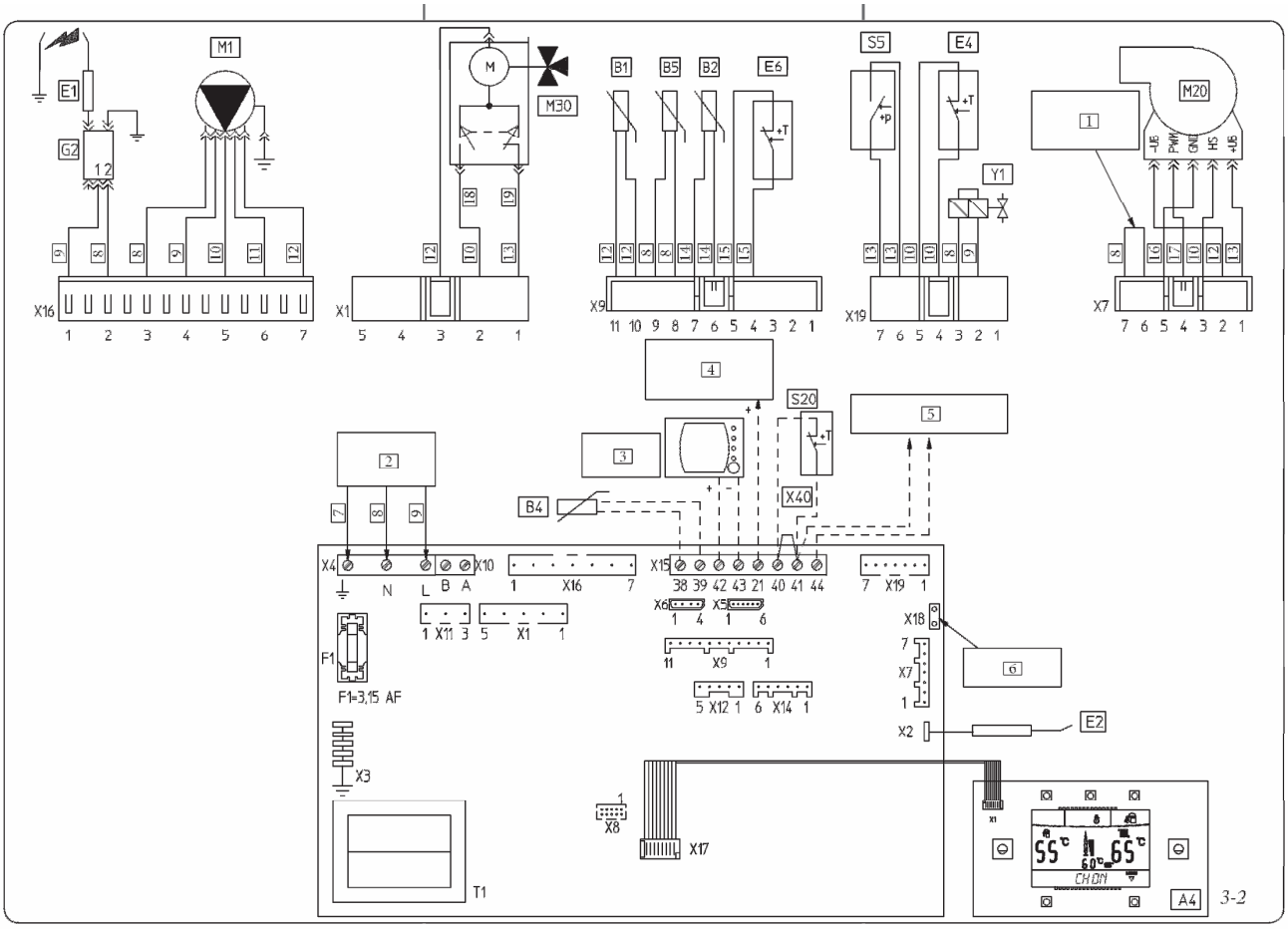


Figure 25—Wiring Diagram

A4 - Display board
B1 - Flow probe
B2 - Domestic hot water probe
B4 - External probe (optional)
B5 - Return probe
E1 - Ignition electrodes
E2 - Detection electrodes
E4 - Safety thermostat
E6 - Flue safety thermostat
F1 - Phase fuse
G2 - Igniter
M1 - Boiler circulating pump
M20 - Fan
M30 - Three-way valve
S5 - System pressure switch
S20 - Room thermostat (optional)
Super CAR - SUPER Comando Amico Remoto remote control (optional)
T1 - Boiler board transformer
X40 - Room thermostat jumper

Y1 - Gas valve
1 - Cylinder configuration jumper
2 - 230 Vac 50Hz power supply
3 - Super CAR remote control (optional)
4 - Zones control unit (optional)
5 - IMG BUS connection
6 - Number of fan revs.
7 - Yellow/Green
8 - Blue
9 - Brown
10 - White
11 - Purple
12 - Black
13 - Red
14 - Green
15 - Grey
16 - Pink
17 - Orange
18 - Domestic hot water
19 - Central heating

Parameters and Information Menu

By pressing the button “D” it is possible to access a menu divided into three main parts:
- “M1” information
- “M3” customisations
- “M5” configurations, menu reserved for the technician and for which a password is required (See page 31 & 32)

By turning the central heating temperature selector switch (3) scroll through the menu items. By pressing button “D” access the various levels of the menu and the choice of parameters is confirmed. Press button “C” to go back one level.

Information Menu. This menu contains the various information relative to boiler functioning:

1° Level	Button	2° Level	Button	3° Level	Button	Description
M1	D ⇨ ⇦ C	P11	D ⇨ ⇦ C			View the management software version of the P.C.B. nstalled in the boiler
		P12				View the total functioning hours of the boiler
		P13				View the number of burner ignitions
		P14 (con sonda esterna optional presente) - - (without external probe optional)		P14/A		View the current external temperature (if optional external probe present)
				P14/B		View the minimum external temperature recorded (if optional external probe present)
				P14/C		View the maximum external temperature recorded (if optional external probe present)
				RESET	D x select ⇦ C	By pressing button “D” the MIN and MAX temperatures measured are zeroed
		P15	D ⇨ ⇦ C			No display on this boiler model
		P17				View the speed in instantaneous revs.of the fan
		P18				View the instantaneous speed of the pump (from 1 to 3)
		P19				View the last 5 events that caused boiler shutdown. Indicator (6) shows the sequential number from 1 to 5 and on indicator (7) the relative error code. By pressing button “D” repeatedly it is possible to view the functioning time and the number of ignitions at which the anomaly occured

Table 9—Information Menu

Customisation menu. This menu contains all functioning options that can be customised. (The first item of the various options that appears inside the parameter is that selected by default).

Important:if the international language is to be restored (A1), proceed as follows:
- press button “D” to enter the configuration menu.
- turn selector switch “3” to PERSONAL.
- press button “D” to confirm.
- turn selector switch “3” to “DATI”.
- press button “D” to confirm.
- turn selector switch “3” to “LI NGUA”.
- press button “D” to confirm.
- turn selector switch “3” to “A1”.
- press button “D” to confirm.

At this point the international items indicated in the menu tables appear on the display.

1° Level	Button	2° Level	Button	3° Level	Button	4° Level	Button	Description
M3	D ⇨ ⇦ C	P31	D ⇨ ⇦ C	**AUTO (Default)**	D x select ⇦ C			The display lights up when the burner is ignited and when the controls are accessed, it remains on for 5 seconds after the last operation performed
				ON				The display is always lit up
				OFF				The display only lights up when the controls are accessed and remains on for 5 seconds after the last operation performed
		P32	D ⇨ ⇦ C	P32/A	D ⇨ ⇦ C	**P32/A.1 (Default)**	D x select ⇦ C	The indicator (7) displays the output temperature from the primary heat exchanger
						P32/A.2		The indicator (7) displays the current external temperature (with optional externl probe)
				P32/B	D ⇨ ⇦ C	**ITALIANO**		All descriptions are given in Italian
						A1 **(Default)**		All descriptions are given in alphanumerical format
		P33	D ⇨ ⇦ C	**OFF**	D x select ⇦ C			In winter mode, by activating this function it is possible to activate the central heating function even if the eventual Remote Control or TA are out of service.
				ON				
		RESET	D x select ⇦ C					By pressing button “D” the customisations made are zeroed, restoring the values set in the factory (Default)

Table 10—Customisation menu

Parameters and Information Menu

M5 menu (password must be entered)					
1° Level	2° Level	Options	Description	Default value	Value set by technician
P53		24 KW 28 KW 32 KW	Identifies the power of the boiler on which the P.C.B. is installed	Equal to boiler power	Equal to boiler power
P54		P54.1	Display the temperature measured by the probe on the cylinder	-	-
		P54.2	Not used	-	-
		P54.3	Displays the temperature read on the return probe	-	-
P55			Displays the central heating flow temperature at which the boiler functions, calculated by the controls active on the system heat adjustment	-	-
SERVICE	P57	1	First central heating speed	AUTO 15 K	
		2	Second central heating speed		
		3	Third central heating speed		
		AUTO	Automatic pump speed. The ΔT value must be set between system flow and return (can be set from 5 to 25K)		
	P62	4000 ÷ 5500	Set the maximum output depending on the domestic hot water, setting the speed of the fan (in RPM)	(See par. 3.5)	
	P63	1000 ÷ 1500	Set the minimum output depending on the domestic hot water, setting the speed of the fan (in RPM)	(See par. 3.5)	
	P64	≤ P62	Set the maximum output depending on room central heating. The value must be less than or equal to P62	(See par. 3.5)	
	P65	≥ P63	Set the minimum output depending on room heating. The value must be greater than or equal to P63	(See par. 3.5)	
	P66	P66/A	Without the external probe (optional) it defines the minimum flow temperature. With the extenal probe present it defines the minimum flow temperature corresponding to functioning with maximum external temperature (see graphics Fig. 1-9) (can be set from 25°C to 50°C) **N.B.**: to continue it is necessary to confirm the parameter (press "D" or exit from "P66" adjustments by pressing "C")	25°C	
		P66/B	Without the external probe (optional) it defines the maximum flow temperature. With the extenal probe present it defines the maximum flow temperature corresponding to functioning with minimum external temperature (see graphics Fig. 1-9) (can be set from 85°C to 50°C) **N.B.**: to continue it is necessary to confirm the parameter (press "D" or exit from "P66" adjustments by pressing "C")	85°C	
		P66/C	With the extenal probe present it defines at which minimum external temperature the boiler must function at maximum flow temperature (see graphics Fig. 1-9) (can be set from -20°C to 0°C) **N.B.**: to continue it is necessary to confirm the parameter (press "D" or exit from "P66" adjustments by pressing "C")	-5°C	
		P66/D	With the extenal probe present it defines at which maximum external temperature the boiler must function at maximum flow temperature (see graphics Fig. 1-9) (can be set from 5°C to +25°C) **N.B**: to continue it is necessary to confirm the parameter (press "D" or exit from "P66" adjustments by pressing "C")	25°C	

Parameters and Information Menu

M5 menu (password must be entered)					
1° Level	2° Level	Options	Description	Default value	Value set by technician
SERVICE	P67	P67.1	In winter mode the pump is always powered and so functions continuously	P67.2	
		P67.2	In winter mode the pump is managed by the room thermostat or by the remote control		
		P67.3	In winter mode the pump is managed by the room thermostat or by the remote control and by the boiler flow probe		
	P68	0s ÷ 500s	The boiler is set to ignite the burner immediately after a request for central heating. In the case of particular systems (e.g. area systems with motorised thermostatic valves etc.) it could be necessary to delay switch-on	0 seconds	
	P69	0s ÷ 255s	The boiler has an electronic timing device that prevents the burner from igniting too often in the central heating phase.	180 seconds	
	P70	0s ÷ 840s	The boiler performs an ignition ramp to arrive from minimum power to nominal heat output.	840 seconds (14 minutes)	
	P71	P71.1 (-3°C)	Boiler ignition for heating the domestic hot water occurs when the water contained in the cylinder falls by 3°C with respect to the temperature set. Solar function deactivated	P71.1	
		P71.2 (-10°C)	Boiler ignition for heating the domestic hot water occurs when the water contained in the cylinder falls by 10°C with respect to the temperature set. Solar function active, if the input domestic hot water has a sufficient temperature the boiler does not switch on		
	P72	AUTO OFF 8L/M 10L/M 12L/M	This function does not affect the correct functioning of this boiler model.	Fixed on AUTO	
	RELE 1 (optional)	RELE 1.OFF	Relay 1 not used	RELE 1.1	
		RELE 1.1	In a system divided into zones, relay 1 controls the main zone		
		RELE 1.2	The relay signals the intervention of boiler block (Can be coupled to an external signalling device, not supplied)		
		RELE 1.3	Thr relay signals that the boiler is on (Can be coupled with an external indicator, not supplied)		
		RELE 1.4	Controls the opening of an external gas valve in concomitance with an ignition request of the boiler burner		
	RELE 2 (optional)	RELE 2.OFF	Relay 2 not used	RELE 2.OFF	
		RELE 2.6	Relay 2 activates the remote filling electrovalve (Optional). The control takes place from remote control.		
		RELE 2.2	The relay signals the intervention of boiler block (Can be coupled to an external signalling device, not supplied)		
		RELE 2.3	Thr relay signals that the boiler is on (Can be coupled with an external indicator, not supplied)		
		RELE 2.4	Controls the opening of an external gas valve in concomitance with an ignition request of the boiler burner		
		RELE 2.5	In a system divided into zones, relay 2 controls the secondary zone		
	RELE 3 (optional)	RELE 3.OFF	Relay 3 not used	RELE 3.OFF	
		RELE 3.7	Check the cylinder recirculation pump		
		RELE 3.2	The relay signals the intervention of boiler block (Can be coupled to an external signalling device, not supplied)		
		RELE 3.3	Thr relay signals that the boiler is on (Can be coupled with an external indicator, not supplied)		
		RELE 3.4	Controls the opening of an external gas valve in concomitance with an ignition request of the boiler burner		
	P76	-10°C ÷ +10°C	If the reading of the external probe is not correct it is possible to correct it in order to compensate any environmental factors	0°C	

Table 11—Configurations menu